Atomic Absorption Spectrophotometer (AAS) is one of the analytical instruments available in the Department of Chemistry, Siddaganga Institute of Technology. AAS will be used to.

- Provide instrumental facilities in the region by carrying out analysis of samples received from academic institutions, research institutions, industries, and other organizations.
- Train technicians for operation and maintenance of AAS.
- Carry out suitable sponsored research projects.
- Carry out suitable collaborative research work.

Atomic Absorption Spectroscopy is a spectroanalytical technique used for the quantitative determination of metals employing the absorption of optical radiation (light) by free atoms in the gaseous state. Aspirating a solution of the sample into a flame aligned in the light beam allows specific quantitative determination of individual elements in the presence of others. Precise and accurate determinations can be made with ease and faster.

Instrument: Atomic absorption spectrophotometer

Make/Model : Avanta-PM, with graphite furnace and hydride generator.

Elements and detection limits

Sl.No.	Metal	Detection limits		Sl.No.	Metal	Detection limits	
		Using flame (ppm)	Using graphite furnace (ppb)			Using flame (ppm)	Using graphite furnace (ppb)
1	Al	0.3-100	0.5-50.0	12	Mo	0.2-20.0	1.0-80.0
2	B	5.0-1400.0	-	13	Na	0.002-0.8	0.25-2.0
3	Ca	0.005-4.0	0.5-6.0	14	Pb	0.1-12.0	2.5-26.0
4	Cd	0.0004-1.8	0.15-2.6	15	Pd	0.1-12.0	15.0-120.0
5	Cr	0.03-10	0.5-16.0	16	Rh	0.04-20.0	-
6	Cu	0.001-4.0	1.0-26.0	17	Ru	0.6-100.0	50.0-260.0
7	Fe	0.05-8.0	1.0-16.0	18	Sb	0.4-40.0	7.5-90.0
8	Hg	1.5-300.0	100.0-3600.0	19	Se	5.0-80.0	25.0-200.0
9	K	0.03-1.6	0.5-5.0	20	V	0.5-100.0	10.0-200.0
10	Mg	0.003-0.06	0.2-2.0	21	Zn	0.005-1.6	0.05-2.0
11	Mn	0.015-4.0	0.5-7.0				

How to submit samples

- The samples should be submitted along with prescribed format indicating the information called far as well as your special requirement, if any.
- Requisition form for getting services of the above instruments may be down loaded at your convenience.
- Minimum of five samples for any type of metal analysis are accepted at a time.

- e-mail ID of the user is mandatory (SPECIFY THE EMAIL-ID LEGIBLY).
- Mention clearly the details of the sample (ingredients, metals present, nitrates, solvents used for preparation, etc.) in the requisition form (SAMPELS SUBMITTED WITHOUT THESE DETAILS WILL BE REJECTED).
- Elements to be determined are to be clearly specified
- 10 ml of aqueous solution required for analysis of each sample.
- Submit samples in air tight vials.
- Submit samples and work order separately for each element.
- Research fellows and students are advised to send their applications and samples through their supervisors or Head of Department. The request shall be made only on University/College/Institute letter head.
- The analytical data are provided only for research/development purposes. These cannot be used as certificates in legal disputes.
- Unstable, radio-active and explosive compounds are not accepted for analysis.
- Unused samples will not be returned after analysis unless request is made.
- Interpretation of results is not undertaken normally. In special cases this service can be provided on payment of extra charges.
- The samples will be registered for analysis and taken up for measurement as per the seniority/queue of the users of the instrument. As soon as the analysis is over, the result along with the bill will be sent to the users by post/scanned copy by e-mail.
- Siddaganga Institute of Technology, Tumkur, shall be duly acknowledged in all the publications of research work, where in the analytical services/results have been made use of. Kindly send us the publication reference (Journal name/volume number/names of the authors/date of issue of the publication etc) to us.
- Services are rendered to only those users who regularly give us feedback about the end-use of the results, e.g., thesis, patent, process, publication etc.

Analysis charges

Three types of charge system is being followed. A list of charges for analysis with effect from ……is as follows :

Category I (Users from Industry) : Charges as given in table.

Category II (Users from R&D Labs, National Labs) : 3/5 of the charges for Category I

Category III (Users from Educational Institutions) : 1/5 of the charges for Category I

- * Service tax applicable
- Category III users (educational purpose) should mention clearly the name of the student who are in need of the analysis.
- The charges below are for analysis of samples received from users within India.
- Charges are subject to change periodically.
- Please ensure the DD amount is exact. If find any difficulty in arriving at the exact amount please contact over e-mail.
- Charges for analyses (with effect from……)

Sl. No.	Instrument	Type of Service	Charges
1.	AAS	Trace determination & estimation of heavy metals. (i) Using flame (ii) Using graphite furnace	Rs. 200/- per sample per element Rs. 600/- per sample per element

- Charges given above are inclusive of taxes (Service Tax @10 % + Edu.Cess @ 2%+ Higher Edu.Cess@1%) and the cost of consumables required for analysis. Postal Charges for dispatch of result Rs.50/-.

- Hands –on- training in above mentioned instruments is also provided to students/technicians and other interested personnel as per following charge structures:
- 500/- per day per person ……
- 800/- per day two persons in a group
- 1050/- per day three persons in a group
- 1300/- per day four persons in a group
- 1500/- per day five persons in a group
- In all correspondence related to analysis, our reference number in the invoice must be mentioned.

For analysis of samples and training for faculty and students of SIT: FREE

Mode of Payment

Please note the current policy on payment of analysis charges:

Send the samples to the address of correspondence. Invoice will be sent by e-mail/post on the receipt of the sample. Analysis of the sample will be done on receipt of the demand draft for analysis charges.

Payments are to be made only by bank D. D. in favour of Principal, Siddaganga Institute of Technology, Tumkur, Karnataka - 572 103. Commission, if any, be borne by the customer.

Address for Communication/sending samples for analysis

Principal
Siddaganga Institute of Technology
Tumkur, Karnataka - 572 103.
Tel: 0816-2214001
Fax: 0816-2282994
e-mail principal@sit.ac.in

For all other correspondence:
The Head
Department of Chemistry
Siddaganga Institute of Technology
Tumkur, Karnataka - 572 103.

Siddaganga Institute of Technology, Tumkur

Department of Chemistry

Invoice

Date

Ref. No. SIT/AAS/

To,

……

…….

Your reference. ……..Dated……. Category: I / II / III

Sl. No.	Element	No. of samples	Rate (Rs.)	Amount (Rs.)
Tax: ST @10% + EC @ 2% on ST + HEC @ 1% on ST*				
Cost of Consumables				
Postal Charges				
Others……..				
			Total	
			Advance	
			Balance	

*ST- Service Tax, EC- Education Cess, HEC- Higher Edu.Cess

Payments are to be made only by bank D.D. in the name of Principal, Siddaganga Institute of Technology, Tumkur, Karnataka. Pin 572 103, Payable at S.I.T. Campus, Tumkur. Commission, if any, be borne by the customer.

Deduction of Income Tax at source is not applicable for payment to

Prepared by:

HOD of Chemistry Principal

Siddaganga Institute of Technology, Tumkur

Department of Chemistry

Form to submit samples

Billing Address:	Name and address of applicant: e-Mail ID: Phone no.

Please submit separate form for each metal. Please submit separate sample for each metal

Metal: Method: Flame / Graphite furnace (Please tick the technique required)

Sample Code	Sample description	Specific requirement	Job no. (For SIT office use)

I have read the instructions and I/we agree for the terms and conditions.

Name: Designation: Signature: Date

……..

For SIT office use:

Date of analysis: Invoice no. Amount: Date:

HOD of Chemistry Accounts Section Principal

(NOT A PART OF BROCHURE)

Siddaganga Institute of Technology, Tumkur

Department of Chemistry

ATOMIC ABSORPTION SPECTROMETRY ANALYSIS REPORT

Date:

Metal: **Method: Flame / Graphite furnace (Please tick the technique followed)**

Sample Code	Job No. (SIT/Chemistry)	Amount of metal in (unit)	Comments

Date of analysis: Operator: Approved by:

Name: Name:

Report prepared by: Signature: Date:

Invoice no.

HOD of Chemistry Principal