

---

**D.B.F. Dayanand College of Arts and Science, Solapur**  
**Department of Chemistry**



<b>Subject</b>	<b>Atomic absorption spectroscopy</b>
<b>Paper No. and Title</b>	<b>Analytical Chemistry</b>
<b>Module (Flipped classroom) Title</b>	<b>AAS</b>
<b>Module Tag</b>	<b>DAYA.CHEM._SPDM1</b>

Name – Dr. S. P. Deshmukh

Department - Chemistry

D. B. F. Dayanand College of Arts and Science, Solapur

2020-2021

---

## Module No. 1

### Title - Atomic absorption spectroscopy

- **Prerequisites –**

Atomic absorption spectroscopy (AAS) and atomic emission spectroscopy (AES) is a spectroanalytical procedure for the quantitative determination of chemical elements using the absorption of optical radiation (light) by free atoms in the gaseous state. Atomic absorption spectroscopy is based on absorption of light by free metallic ions. In analytical chemistry the technique is used for determining the concentration of a particular element (the analyte) in a sample to be analysed. AAS can be used to determine over 70 different elements in solution, or directly in solid samples via electro-thermal vaporization, is used in pharmacology, biophysics, archaeology and toxicology research.

- **Objectives of the Module**

Students should learn about the details of the Atomic Absorption Spectroscopy

Content	Objectives (Learner should be able to )	Cognitive Level
Atomic absorption spectroscopy	Definition	Remembering
	Introduction about spectroscopy	Remembering
Introduction Elements of periodic tables	Role of elements in the periodic table	Remembering
	Visualization method	Applying
	Proper thought process	Understanding
	Asking question and some simple concept	Evaluating

### Detailed Plan of Out-of-class and In-class activities

Sub Unit 1 -

#### Objectives –

- What is spectroscopy?

- Understanding Atomic Absorption Spectroscopy

## Resources Needed –

→ Title and Nature of Resources –

Syllabus of M. Sc. I Analytical Chemistry

<https://drive.google.com/drive/u/1/folders/17I1M9X87D72uvf5SOShnqIYNpcmXWSPe>

→ Material OER/URL/Instructor-made/Copywrited/Text Book etc.

1) Text Books

<https://drive.google.com/drive/u/1/folders/17I1M9X87D72uvf5SOShnqIYNpcmXWSPe>

<https://drive.google.com/drive/u/1/folders/17I1M9X87D72uvf5SOShnqIYNpcmXWSPe>

2) Instructor-made -

PPT -

[https://docs.google.com/presentation/u/1/d/1X7CwL6LaFEPm9RXn0skDpaIIod\\_qwAK/edit?usp=drive\\_web&oid=102959153518606886778&rtpof=true](https://docs.google.com/presentation/u/1/d/1X7CwL6LaFEPm9RXn0skDpaIIod_qwAK/edit?usp=drive_web&oid=102959153518606886778&rtpof=true)

3) Instructor-made -

Video -

<https://drive.google.com/drive/u/1/folders/17I1M9X87D72uvf5SOShnqIYNpcmXWSPe>

4) Quiz-

<https://forms.gle/XnQdut9BSNjRYfnL6>

Units	Out-of-class activity Details of Activity	In-class activity Details of Activity	Assessment
1.1	Students should read out the topic from a Text book Students should listen to the recordings	Discussion on the topic Check the level of understanding through Question – answer session	Question – answer session
1.2	Students should read out the topic from a Text book  Students should listen to the recordings	Same as above  Help students to apply the definition	Question to write in detail

---

Sub Unit 2 -

<b>Content</b>	<b>Objectives (Learner should be able to )</b>	<b>Cognitive Level</b>
Electromagnetic radiation	How electromagnetic radiation playing a vital role in the spectroscopy	Remembering
Fundamentals of spectroscopy Instrumentation	Energy level comparison	Remembering
	Instrumental parts in the spectroscopic unit	Remembering
	Visualization method	Applying
	Proper thought process	Understanding
	Asking question and some simple concept	Evaluating

**Objectives –**

- Electromagnetic radiation playing a vital role in the spectroscopy
- Energy level comparison
- Instrumental parts in the spectroscopic unit

---

## Resources Needed –

→ Title and Nature of Resources –

Syllabus of M. Sc. I Analytical Chemistry

<https://drive.google.com/drive/u/1/folders/17I1M9X87D72uvf5SOShnqIYNpcmXWSPe>

→ Material OER/URL/Instructor-made/Copywrited/Text Book etc.

2) Text Books

<https://drive.google.com/drive/u/1/folders/17I1M9X87D72uvf5SOShnqIYNpcmXWSPe>

<https://drive.google.com/drive/u/1/folders/17I1M9X87D72uvf5SOShnqIYNpcmXWSPe>

2) Instructor-made -

PPT -

[https://docs.google.com/presentation/u/1/d/1X7CwL6LaFEPm9RXn0skDpaIIod\\_qwcA](https://docs.google.com/presentation/u/1/d/1X7CwL6LaFEPm9RXn0skDpaIIod_qwcA)

[K/edit?usp=drive\\_web&oid=102959153518606886778&rtpof=true](https://docs.google.com/presentation/u/1/d/1X7CwL6LaFEPm9RXn0skDpaIIod_qwcA/edit?usp=drive_web&oid=102959153518606886778&rtpof=true)

3) Instructor-made -

Video -

<https://drive.google.com/drive/u/1/folders/17I1M9X87D72uvf5SOShnqIYNpcmXWSPe>

4) Quiz

<https://forms.gle/XnQdut9BSNjRYfnL6>

Units	Out-of-class activity Details of Activity	In-class activity Details of Activity	Assessment
2.1	Students should read out the topic from a Text book  Students should listen to the recordings	Discussion on the topic Check the level of understanding through Question – answer session	Question – answer session
2.2	Students should read out the topic from a Text book Students should listen to the recordings	Same as above  Help students to develop the information in tabular form	Question to write in detail