



**PARVATHANENI BRAHMAYYA  
SIDDHARTHA COLLEGE OF ARTS & SCIENCE**

*Autonomous*

Siddhartha Nagar, Vijayawada-520010

*Re-accredited at 'A+' by the NAAC*

<b>Course Code</b>				<b>23CHMAP234</b>			
<b>Title of the Course</b>				<b>QUALITATIVE INORGANIC ANALYSIS</b>			
<b>Offered to: (Programme/s)</b>				B.Sc. Hons Chemistry			
<b>L</b>	<b>0</b>	<b>T</b>	<b>0</b>	<b>P</b>	<b>2</b>	<b>C</b>	<b>1</b>
<b>Year of Introduction:</b>		2024-25		<b>Semester:</b>			3
<b>Course Category:</b>		Major		<b>Course Relates to:</b>		Global	
<b>Year of Revision:</b>		2024		<b>Percentage:</b>			
<b>Type of the Course:</b>				Employability/Skill development			
<b>Crosscutting Issues of the Course :</b>				Professional Ethics			
<b>Pre-requisites, if any</b>				23CHMAP121, 23CHMAP122			

**Course Description:** Qualitative inorganic analysis is a branch of chemistry focused on identifying the composition of inorganic compounds or mixtures. It's a fundamental aspect of chemistry, especially in contexts where determining the presence of specific elements or ions is crucial. Qualitative inorganic analysis is essential in various fields, including environmental testing, forensic analysis, and industrial quality control. It requires a solid understanding of chemical reactivity and the ability to interpret experimental results accurately

**Course Aims and Objectives:**

<b>S.N O</b>	<b>COURSE OBJECTIVES</b>
1	Gain a solid grasp of the theoretical concepts behind qualitative inorganic analysis
2	Learn the principles of separation and identification of ions in a mixture
3	Learn to perform classical tests such as precipitation, flame tests, and complexation reactions.
4	Learn to identify the cations and anions present in a mixture through a series of confirmatory tests.
5	Learn to use these references to support the analysis and interpretation of results.

## Course Outcomes

At the end of the course, the student will be able to...

CO NO	COURSE OUTCOME	BTL	PO	PSO
CO1	Remember use glassware, equipment and chemicals and follow experimental procedure.	K1	PO1	PSO1
CO2	Understand the basic concepts of qualitative analysis of inorganic mixture .	K2	PO2	PSO1
CO3	Understand the analysis of mixture salt containing two anions and two cations.	K2	PO2	PSO2
CO4	Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis.	K3	PO7	PSO2
CO5	Apply the procedure for salt mixture and report anions a cations present in it.	K3	PO7	PSO2

For BTL: K1: Remember; K2: Understand; K3: Apply; K4: Analyze; K5: Evaluate; K6: Create

CO-PO MATRIX										
CO NO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
CO1	1							1		
CO2		2						2		
CO3		3							2	
CO4							3		3	
CO5							2		2	

Use the codes 3,2,1 for High, Moderate and Low correlation Between CO-PO-PSO respectively

### Analysis of Mixture

50M

Analysis of mixture salt containing two anions and two cations (From two different groups) from the following:

**Anions:** Carbonate, Sulphate, Chloride, Bromide, Acetate, Nitrate, Borate, Phosphate. **Cations:** Lead, Copper, Iron, Aluminium, Zinc, Nickel, Manganese, Calcium, Strontium, Barium, magnesium and Ammonium.

Minimum of Six mixtures should be analyzed.

### Co-curricular activities and Assessment Methods

- 1) Continuous Evaluation: Monitoring the progress of student's learning
- 2) Class Tests, Worksheets and Quizzes Presentations, Projects and Assignments and Group

Discussions: Enhances critical thinking skills and personality

- 3) SEMESTER - End Examination: critical indicator of student's learning and teaching methods adopted by teachers throughout the SEMESTER .

**List of Text books:**

1. A textbook of qualitative inorganic analysis by A.I. Vogel.

**References-weblinks**

1. [https://chem.libretexts.org/Courses/University\\_of\\_California\\_Davis/Chem\\_4C\\_Lab%3A\\_General\\_Chemistry\\_for\\_Majors/Chem\\_4C%3A\\_Laboratory\\_Manual/08%3A\\_Inorganic\\_Qualitative\\_Analysis\\_\(Experiment\)](https://chem.libretexts.org/Courses/University_of_California_Davis/Chem_4C_Lab%3A_General_Chemistry_for_Majors/Chem_4C%3A_Laboratory_Manual/08%3A_Inorganic_Qualitative_Analysis_(Experiment))
2. <https://www.britannica.com/science/qualitative-chemical-analysis>
3. <https://www.rbmcollege.ac.in/sites/default/files/files/reading%20material/inorganic-qualitative-analysis.pdf>



**PARVATHANENI BRAHMAYYA  
SIDDHARTHA COLLEGE OF ARTS & SCIENCE**  
*Autonomous*  
Siddhartha Nagar, Vijayawada-520010  
*Re-accredited at 'A+' by the NAAC*

**(A) Semester End Lab Examination**

**Course Code: 23CHMAP234**

**Title of the Course : QUALITATIVE INORGANIC ANALYSIS**

**Offered to: B.Sc. Hons Chemistry**

**Semester: III**

**Max.Marks: 50 (CIA+SEE)**

**Max. Time: 3 Hrs**

**I. Answer the following.**

**Max. Marks: 30 Marks**

**Q1. Analyze the mixture and report anions and cations present in it .**

**II Viva**

**3 Marks**

**III Record**

**2 Marks**

**(B) CONTINUOUS ASSESMENT (Internal)**

**15 MARKS**

**TOTAL : (A)+(B) =**

**50MARKS**