

DEPARTMENT OF CHEMISTRY				CLASS: I B.Sc. Botany, Zoology, Microbiology & Biotechnology				
SEM	Course type	Course Code	Course Title	Credits	Contact Hours/week	CIA	Ext	Total
I&II	Allied Chemistry practicals	20U2CAP	Semi-micro qualitative & volumetric analysis (For I Botany & Zoology)	2	2	40	60	100

#### Course Objectives:

1. To demonstrate basic laboratory technique of titration and analysis
2. To develop the intellectual and psychomotor skills of the students by imparting knowledge in qualitative analysis of organic compounds
3. To examine the quantitative estimation of inorganic compounds through volumetric techniques.

#### LIST OF EXPERIMENTS

SEMI-MICRO QUALITATIVE ANALYSIS	VOLUMETRIC ANALYSIS
Semi-micro qualitative analysis of simple salts (containing one cation and one anion)	<b>Acidimetry</b> Oxalic acid Vs NaOH Vs HCl <b>Alkalimetry</b> Na <sub>2</sub> CO <sub>3</sub> Vs HCl Vs NaOH <b>Permanganometry</b> FAS Vs KMnO <sub>4</sub> Vs Oxalic acid

#### Books for References

1. Dr. Chirag R. Fultariya & Dr. Jalpa P. Harsor, "Volumetric analysis: Concepts and Experiments", 1<sup>st</sup> edition, ISBN No. 9781365799303.
2. Vogel's text book of macro and semi-micro qualitative inorganic analysis, 5<sup>th</sup> edition.
3. O. P. Pandey, D. N. Bajpai, S. Giri, Practical Chemistry, ISBN: 9788121908122, 9788121908122, Revised edition, S Chand & Co Ltd.

#### Web Resources

1. <http://www.federica.unina.it/agraria/analytical-chemistry/volumetric-analysis/>
2. <https://byjus.com/chemistry/volumetric-analysis/>

**Course Learning Outcomes: After successful completion of this course, the student will be able**

CLOs	CLO statement	Knowledge level
CLO1	To demonstrate the basic laboratory techniques of volumetric analysis and estimate the comparative strength of acidic, basic and redox materials present in the given samples.	K4
CLO2	To demonstrate mastery of basic semi-micro qualitative analysis of simple salts containing one anion and one cation.	K4
CLO3	To interpret analytical data and will make scientific claims that are supported by their observations.	K4
CLO4	To systematically analyze the general group cations and their individual separation of cations.	K4
CLO5	To interpret analytical data and make scientific claims that is supported by their data and other observations.	K4

**PO and CLO Mapping:**

	PO 1	PO 2	PO 3	PO 4	PO 5
CLO1	3	2			
CLO2	3	2			
CLO3	3	2			
CLO4	3	2			
CLO5	3	2	2	2	

**PSO and CLO Mapping:**

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9
CLO1							3	2	2
CLO2							3	2	2
CLO3							3	2	2
CLO4							3	2	2
CLO5							3	2	2

3-Advance application; 2-Intermediate level; 1-Basic level

**Internal Component**

Title of Analysis	No of hours
Volumetric analysis	45
Semi micro qualitative analysis	45

- Subject to change depends on the content

**Name of the Course Designer**

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2. Dr.S.V.Karthikeyan