

## Lecture Plan

**Name of the college: Government College of Arts, Science and Commerce, Sanquelim- Goa**

**Name of Faculty:** Ankita M. Vernekar

**Subject:** Chemistry

**Paper code:** CHC-201

**Program:** S.Y. B.Sc.

**Division:** -

**Academic year:** 2024 - 2025

**Semester:** III

**Total Lectures:** 15

**Course Objectives:** : To familiarise the students with the concepts and principles of analytical chemistry, Evaluation of analytical data and Classical methods of analysis

### **Expected Course Outcome:**

1. To understand scope and importance of analytical chemistry and to interpret steps involved in chemical analysis.
2. To study concepts of data analysis for determining central tendency and dispersion.
3. To study classical methods of analysis inclusive of principles and instrumentation.

### **Student Learning Outcome:**

1. To understand scope and importance of analytical chemistry and to interpret steps involved in chemical analysis.
2. To study concepts of data analysis for determining central tendency and dispersion.
3. To study classical methods of analysis inclusive of principles and instrumentation.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
June	28/06/2024	29/06/2024	1	<b>Introduction to analytical techniques</b> Chemical analysis and analytical chemistry		Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd
July	01/07/2024	06/07/2024	1	Scope and importance	Explain importance of analytical chemistry	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
July	08/07/2024	13/07/2024	1	Classification of instrumental methods		Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
July	15/07/2024	20/07/2024	1	analytical process (steps involved in chemical analysis): defining the problem, sampling, separation of desired components, actual	Discuss steps in analytical process	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles

				analysis, presentation and interpretation of results.			in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
July	22/07/2024	27/07/2024	1	<b>Evaluation of analytical data</b> Errors: Classification of errors, absolute and relative error		Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
July/ August	29/07/2024	03/08/2024	1	constant and proportionate errors,		Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
August	05/08/2024	10/08/2024	1	determinate and indeterminate error, correction and minimization of errors.	Describe different types of error	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
August	12/08/2024	17/08/2024	1	Accuracy and precision, determination of accuracy in terms of relative error.	Differentiate between accuracy and precision	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles

							in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.	
August	19/08/2024	24/08/2024	1	Measures of central tendency and dispersion – Mean, Median, Mode, Range, Relative Deviation, Average Deviation, Relative deviation	Analyse the statistical data	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.	
August	26/08/2024	31/08/2024	1	Average Deviation (RAD), Standard deviation, Variance	Analyse the statistical data	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.	
September	02/09/2024	07/09/2024	1	Coefficient of variance. Significant figures and rounding off,	Analyse the statistical data	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.	
September	09/09/2024	14/09/2024	<b>GANESH CHATURTHI</b>					
September	16/09/2024	21/09/2024	1	Significance of zero in computation, Rules of computation	Analyse the statistical data	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004.	

							2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
September	23/09/2024	28/09/2024		<b>Classical methods of analysis</b> Principles of gravimetric analysis: precipitation, coagulation, peptization, coprecipitation, post precipitation, digestion,	Discuss principle of gravimetric analysis	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
September/ October	30/09/2024	05/10/2024	1	peptization, coprecipitation, post precipitation, digestion, filtration and washing of precipitate, drying and ignition.		Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
October	07/10/2024	12/10/2024	1	Principles of titrimetric analysis: Theories of acid-base, redox	Discuss principle of titrimetric analysis	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.

October	14/10/2024	19/10/2024	1	redox (including iodometric/iodimetric), complexometric, and precipitation titrations - choice of indicators for Acid base	Power point presentation/ Smart board	1)B. K. Sharma. Instrumental Methods of Chemical Analysis,5thed. Goel Publishing House, Meerut. 2004. 2) K. Raghuraman, D. V. Prabhu, C. S. Prabhu and P. A. Sathe, Basic principles in Analytical Chemistry, 5th edition, Shet Publications Pvt. Ltd.
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**\*Assessment Rubrics**

Component	Marks
ISA 1	
ISA 2	7.5
Practical	25
Project	
Semester End Exam	20