Even Semester Lecture Plan

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

Name of Faculty: Ms. Rosalina Desilva	**Subject:** Chemistry

Paper code: CHC- 141 Water and Soil Analysis	**Program/Course: F**.Y. B.Sc.	**Division:** A

Academic year: 2025 - 2026	**Semester: II**	**Total Lectures: 15**

Course Objectives: Theory

- To define the various terms encountered in sampling and study the techniques involved.
- To study methods that can be employed for the determination of the various physico-chemical parameters of water and soil.

Course Learning Outcome: At the end of the course students will be able to

1. Understand the fundamentals and techniques of water and soil sampling.
2. To describe the methods for the determination of various physico chemical parameters of soil and water

Month	**Lectures From: To:**	**No. of lectures allotted**	**Topic, Subtopic to be covered**	**Learning outcome**	**ICT Tools**	**Reference books**
December 2025	01/12/25-06/12/25	01	Introduction to Analytical Chemistry-analysis and techniques	At the end of the course students will be able to 1. Understand the fundamentals and techniques of water and soil sampling.	Smartboard	1. K. De, Environmental Chemistry. New age international Publishers, 4th Edition. 2. B. K. Sharma, Environmental Chemistry. Krishna Prakashan Media (P) Ltd. 2014. 3. Svehla, G. Vogel's Qualitative Inorganic Analysis, Pearson Education, 2012.

	08/12/25-13/12/25		**1.Sampling Techniques:** Terms encountered in sampling: the population or the universe, Sample, Sampling unit, increment			4. Mendham, J. Vogel's Quantitative Chemical Analysis, Pearson, 2009. 5. Dr Sunita Rattan Experiments in Applied chemistry, 3rd Edition, -S. K. Kataria and Sons. 2011 6. Pandey, O.P., Bajpai D. N. & Giri S. Practical Chemistry, Revised Edition, (For BSc. I, II, III Year Students of All Indian Universities) S. Chand Company Pvt Limited, 2014
	15/12/25-20/12/25		TARANG			
	22/12/25-23/12/25	01	the gross sample, the sub sample, Analysis sample, Bulk ratio, Size to weight ratio,			
January 2026	O2/01/26-03/01/26	01	Random sampling, Systematic sampling, Multistage sampling, Sequential sampling.			
	O5/01/26-10/01/26	01	Sampling of Liquids and Solids.			
	12/01/26-17/01/26	01	Preservation, storage and preparation of sample solution.			
	19/01/26-24/01/26	01	**2.Analysis of soil:** Composition of soil, Concept of pH and pH measurement,	To describe methods for determination of various physico chemical parameters of soil and water		
	27/01/26-31/01/26	01	Chelation, chelating agents, use of indicators.			

February 2026	O2/02/26-07/02/26	01	Bulk density, Specific gravity, moisture content, water holding capacity			
	O9/02/26-14/02/26	01	pH, electrical conductivity, alkalinity			
	16/02/26-21/02/26	01	Calcium, magnesium and organic matter.			
	23/02/26-28/02/26	01	**3.Analysis of water:** Definition of pure water, sources of water contamination,			
March 2026	O2/03/26-07/03/26	01	water purification methods-domestic and industrial waters			
	O9/03/26-14/03/26	01	Water analysis			
	16/03/26-21/03/26	01	Water analysis			
	23/03/26-28/03/26	01	Water analysis			
	30/03/26-31/03/26	01	**Revision**			