

ANALYTICAL CHEMISTRY WORKSHOP

JAN 10 & 11, 2025

IIT MADRAS RESEARCH PARK, CHENNAI

Day 1 (10th Jan 2025)

8.30 – 9.00 Opening address and overview of 2 days' workshop.

Session 1 (9.00 – 10.30)

Importance of classical methods of analysis in Industrial applications. Principles of volumetric and gravimetric analysis. Equation solving for acid/base, oxidative and complexometric titrations. Importance of solubility product and common ion effect in designing/conducting gravimetric analysis

Tea Break (10.30 -11.00 AM)

Session 2 (11.00 AM – 12.30 PM)

Molecular Spectroscopy – UV visible and fluorescence. Principles, Lambert Beer's law, Binary and ternary complex and real-world examples for UV Visible/fluorescence methods

Lunch (12.30 – 1.30 PM)

Session 3 (1.30- 3.30 PM)

Working principles and instrumentation of AAS (Flame, Furnace and Hydride), ICP-OES and ICP-MS. Examples of food, environmental and material testing samples (sample preparations and matrix separation etc)

Tea Break (3.30 – 4.00)

Session 4 (4.00 – 6.00 PM)

GC/GCMS Working principles, Instrumentation, types of detectors, column types and selection methods. Types of sample introductions. Applications related to Environmental, Food and Materials testing. Pharma applications will be discussed separately

Day 2 (11th Jan 2025)

Session 5 (9.00 – 10.30 AM)

What to expect and how to prepare if we want to pursue higher education (PhDs). A special session by IIT Professor, R. Vinu

Tea Break 10.30 – 11.00 AM

Session 6 (11.00 – 1.00 PM)

Working Principles and Instrumentation of LC/LCMS. Types of detectors, column selection, mobile phase selections. Real-world examples Food, Environmental and material testing industries.

Lunch 1.00 – 2.00 PM

Session 7 (2.00 – 4.30 PM)

What do we expect to work in Pharma Industry? How to brush up our knowledge to enter Pharma Industry chemist job. Some typical examples for classical methods of analysis, Instrument methods, and QA/QC

Tea Break 4.30 – 5.00 PM

Session 8 (5.00 – 6.00 PM)

Quick overview of ISO 17025 Laboratory Quality Management System. QA/QC in Analytical Measurements.