

DEPARTMENT OF CHEMISTRY

TARA GOVERNMENT COLLEGE, SANGAREDDY (A)



*Short-term Certificate Course in*  
**ANALYTICAL TECHNIQUES IN CHEMISTRY**  
*through MOOCs*

**Eligibility:**

B.Sc./B.A./B.Com. Students who have completed their Intermediate with CHEMISTRY as one of the Optional Subjects.

**Objective of the Course:**

To make the learners understand the fundamental concepts of analytical techniques used for the analysis of samples in Chemistry.

**Outcome of the Course:**

- Student will be able to understand concepts, techniques and applications of solvent extraction and chromatographic methods like TLC and PC.
- Student will have basic knowledge of principles and techniques involved in CC, IEC, GC and HPLC along with their applications in chemical analysis.

**SYLLABUS:**

1. **Solvent Extraction:** Concepts, Types, Applications.
2. **Chromatography:** Classification of chromatographic methods, principles of differential migration, adsorption phenomenon, nature of adsorbents, solvent systems.
3. **Thin layer Chromatography (TLC):** Advantages, preparation of plates, development of the chromatogram, Detection of the spots using UV cabinet, factors effecting Rf values and applications.
4. **Column Chromatography (CC):** Principle, Types of stationary phases, Column packing – Wet packing technique, Dry packing technique. Selection criteria of mobile phase solvents for eluting polar, non-polar compounds and its applications.
5. **High performance liquid chromatography (HPLC):** Theory and instrumentation, stationary phases and mobile phases. Applications and Methods of analysis of purity of compounds.
6. **Gas Chromatography (GC):** Theory and instrumentation, stationary phases and mobile phases, Applications.
7. **Ion Exchange Chromatography (IEC):** Concepts, Types, stationary phases and mobile phases, Applications.
8. **Paper Chromatography (PC):** Concepts, Types, stationary phases and mobile phases, Applications.

**Instructions:** Students should go through the video lessons and qualify the online assessment to complete the course and get certificate.



## YOUTUBE VIDEO LESSONS

**Solvent Extraction**

<https://youtu.be/vY4GTnBHeCs>

**Chromatography**

<https://www.youtube.com/watch?v=rUAg4xM2Z5Y>

**Thin layer chromatography**

<https://youtu.be/KnvME2buH-8>

**Column chromatography**

<https://youtu.be/6yJmfsV-TRI>

**HPLC**

<https://youtu.be/vY4GTnBHeCs>

**Gas Chromatography**

<https://youtu.be/n5b8sx3L41Q>

**Ion Exchange  
Chromatography**

<https://youtu.be/GW3P0QjSZvk>

**Ion Exchange  
Chromatography**

<https://youtu.be/GW3P0QjSZvk>

**Paper chromatography**

<https://youtu.be/DZYlptwieYU>

**Online Assessment Link:**



[https://docs.google.com/forms/d/e/1FAIpQLSevNevCERS1iRCLJhU08YVOVc7bU9zvjl0BOR1RIZqmk4yyTw/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSevNevCERS1iRCLJhU08YVOVc7bU9zvjl0BOR1RIZqmk4yyTw/viewform?usp=sf_link)

<b>Coordinator of the Course:</b>	<b>Dr. K.Abhijit</b> , <i>Head, Department of Chemistry</i>
<b>Co-Coordinator of the Course:</b>	<b>Dr. K.Vani</b> , <i>Assistant Professor, Department of Chemistry</i>

*For any Queries, Consult Department of Chemistry, Tara  
Govt. College, Sangareddy(A).*