

Value-added course on

Water quality analysis



This course provides students with practical, on-the-job skills in water quality analysis.

Course Code: CHEVA05

Duration: 30 Hours

Session: Even Semester

Eligibility: M.Sc. Chemistry Students

Contact: Course Coordinator

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DEPARTMENT OF INDUSTRIAL CHEMISTRY**ALAGAPPA UNIVERSITY**

{Accredited with A+ Grade by NAAC (CGPA: 3.64) in the Third Cycle}

Course code: CHEVA05	WATER QUALITY ANALYSIS	Hours: 30
Objectives	➤ This course aims to equip students with practical, job-oriented skills in water quality assessment and spectrophotometric detection of water contaminants.	
Unit -I	Introduction: Physical, chemical, and biological properties of water, types of water sources, occurrence, and importance. Water pollution: source, types, and management	
Unit -II	Wastewater Treatment Technologies: Introduction to the basic units and principles of wastewater treatment. Conventional treatment technologies for wastewater.	
Unit -III	Wastewater treatment – pre and primary treatment – equalization neutralization – screening and grid removal – sedimentation – oil separation gas stripping of volatile organics – biological oxidation – lagoons and stabilization basins – aerated lagoons – activated sludge process – trickling filtration – anaerobic decomposition.	
Unit -IV	Water Quality Analysis: Theoretical principle of determination of Total Alkalinity of water, total hardness of the water sample, pH of ground and wastewater, Dissolved oxygen of wastewater, Chemical oxygen demand of wastewater, the salinity of the given water sample, turbidity of various water sample, detection and measurement of various contaminant using a spectrophotometric method such as nitrate, chloride, fluoride, iron, micro-pollutants.	
Unit -V	LAB: 1. Measurement of total hardness of water. 2. pH measurement of groundwater. 3. COD determination of water sample.	
Outcomes	After the completion of the course, the students should be able to (i) Acquire a basic knowledge of various treatment technologies and quality parameters of wastewater. (ii) Understand the principles of treatment technologies and analysis of water quality parameters. (iii) Training on determining the common water contaminants	

Recommended Books:

1. R.Shangi, M.M.Srivatsava, "Green Chemistry", Narosa Publishers, New Delhi, 2003.
2. P.T.Anasta, Green Chemistry: Theory & Practice, Oxford University Press, 2000.
3. A.E.Marteel-Parrish, M.A.Abraham, Green Chemistry and Engineering: A Pathway to Sustainability, Wiley, 2014.
4. V. K. Ahluwalia, Green Chemistry: A Textbook, Alpha Science International, 2012.
5. Mike Lancaster. Green Chemistry: An Introductory Text, Royal Society of Chemistry, 2010.