

5th Semester	REV5C001	Instrumental Methods for Environmental Analysis	L-T-P 3-0-0	3 Credits
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Module I:**(10 hours)**

Treatment of data in quantitative analysis: Accuracy, Precision, Standard deviation, and types of Errors, minimization of error, significant figures, criteria for rejection of data.

Module II:**(6 hours)**

Principles of instrumentation; advantages, applications, and limitations of the following analytical techniques: Spectro photometry, FTIR, NMR, Atomic absorption and Emission spectrophotometry, Flame photometry, Fluorimetry, Nephelometry, Inductively coupled plasma spectrometry and MS.

Module III:**(6 hours)**

Electrochemical methods: Polarography, Pulse polarography, Ion selective electrodes, Oscilloscopic Polarography, Cyclic voltametry, Anodic Stripping Voltametry.

Module IV

Chromatography: Classification, general ideas about adsorption, partition, and column chromatography, paper and thin layer chromatography.

Module V:**(8 hours)**

Gas chromatography, High performance liquid chromatography (HPLC), Ion chromatography. Particle size and shape analyser. Auto-titration method.

Books:

1. Instrumental Methods of Analysis -HH Willard & LL Dean, John Wiley, 1976
2. Modern Methods of Chemical Analysis -RL .Recsok & LD Shields, John Wiley & sons, Inc, 1990
3. Instrumental Methods of Chemical Analysis -GW Ewing, McGraw Hill Book Company, Inc. 1975
4. Modern Methods of Chemical Analysis -RL Pecsok & LD Shields, John Wiley & Sons, Inc. 1986