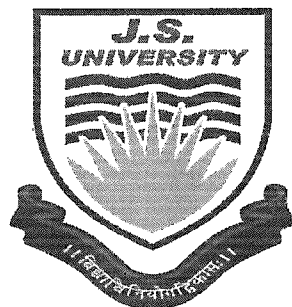


# **J.S. University, Shikohabad**

Established by UP Govt. Act No. 07 of 2015

Recognized by U.G.C. under section 2 (f) of Act-1956



**Value Added Course**

**(ANALYTICAL TECHNIQUES)**

**(Course Code: VAC-105)**

**Department of Chemistry**



J.S. University, Shikohabad  
Department of Chemistry

Value Added Course

AY:2020-2021

## **ANALYTICAL TECHNIQUES**

### **Learning Objective:**

This Course will provide knowledge of Analytical Techniques

**Duration:** 30 Hours.

### **Course Outcomes: -**

After completion of the course the student shall be able to:-

- CO-1** Evaluate the analytical tools and learn about the technics to use in the chemistry.
- CO-2** The use of analytical technics and how to useful to examine the chemical synthesis and its purification.



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## Syllabus Outline- (VAC 105)

### 1. Module -I

(15 hours)

#### Analytical Methods

(A) Classification of Analytical methods; Types of instrumental methods, Instruments for Analysis, selecting an Analytical method, Factors affecting Analytical methods, calibration of instrumental methods

(B) Application of operational amplifiers; voltage and current control, to mathematical operations.

(C) Limitations of Analytical methods, classification of errors, Accuracy and precision, mean and standard deviation, Distribution of random errors, confidence intervals, comparison of results, paired t-test, the number of replicate determinations, correlations and regressions, Yates methods, Data handling, Factors Analysis.

(D) Sampling techniques gases and vapors, liquids and solids.

### 2. Module –II

(15 hours)


#### Analytical Technics

(A) **Separation techniques:** solvent extraction, Ion-exchange separations, Instrumental separations.

(B) **Chromatography:** TLC, LC, GC, HPLC methodology, equipment and Industrial Applications.


(C) **Titrimetric Analysis:** Classification of reactions, principles of potentiometric titrations.

(D) **Mechanical-physical separation process:** introduction, classification and Filtration in solid-liquid separations.

	J.S. University, Shikohabad Department of Chemistry	Value Added Course
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**References:**


1. Vogel's textbook of Quantitative Chemical Analysis
2. Fundamentals of Analytical Chemistry, Skoog.



(Name of Faculty)

Course Coordinator


Dr. Nayan



(Name of Faculty)

Dean Academics

Dr. Akhilesh



(Name of Faculty)

Director/Principle/Dean of  
Faculty/Department

Dr. B.P. Chauhan