

**K. M. AGRAWAL COLLEGE OF ARTS COMMERCE & SCIENCE, KALYAN (W)**

**Department of Chemistry**  
**Certificate course on "Nanotechnology"**  
**2023-24**  
**Syllabus**

**Title: An introduction to Nanotechnology**

**Unit I: Basic principles of Nanotechnology** (5)

- i. Introduction
- ii. History
- iii. Scope of Nanotechnology

**Unit II: Tools for measurement in Nanotechnology** (5)

- i. SEM (Scanning electronic microscopy)
- ii. TEM ( Tunneling electronic microscopy)
- iii. Optical microscopy
- iv. UV/Visible spectrometry
- v. Raman spectroscopy
- vi. Additional tools

**Unit III:** (5)

**A) Approaches in Nanotechnology**

- i. Top-down approach
- ii. Bottom-up approach

**B) Method of preparation of Nanomaterials**

- i. Chemical vapour deposition (CVD) method
- ii. Evaporation method

**Unit IV: Application of Nanotechnology** (5)

- i. Medicinal Application
- ii. Tissue Engineering
- iii. Pharmacological Application
- iv. Industrial Application

**Experiments in Laboratory:** (10)

- i. To prepare silver nanomaterials form different plant extract
- ii. To purify the carbon nanomaterials obtained from various methods.

**Course Co-ordinator**

Dr. Suman Tripathi

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