

- *Introduction to analytical chemistry.*
  - *Classification of an analytical method.*
  - *Definition, purpose and differences between gravimetric, volumetric and instrumental methods of analysis.*
  - *Choice of method for an analysis*
  - *Steps in chemical analysis*
- *Solution preparation and concentration*
  - *Chemical formulas, and formula weights.*
  - *Molarity, normality, percentage (w/w, w/v and v/v), and part per million.*
  - *Inter- Converting one concentration expression to another.*
- *Stoichiometric Relationships*
  - *The mole concept.*
  - *Balancing chemical equations*
  - *Stoichiometric factors*
  - *Calculation using chemical equations*
- *Gravimetric methods of analysis*
  - *Steps in gravimetric analysis*
  - *Properties of products used in gravimetric analysis*
  - *Calculation involving gravimetric analysis*
  - *Application of gravimetric analysis*
- *The Solubility of precipitate*
  - *The solubility product constant*
  - *Effect of common ion on solubility*
  - *Effect of diverse ion on solubility.*
  - *Effect of pH on solubility*
  - *Effect of electrolyte on solubility*
  - *Effect of complexing agent on solubility*
- *Introduction to volumetric methods of analysis*
  - *Terminology associated with volumetric methods*
  - *Reactions and Reagent used in volumetric analysis*
  - *Primary and Secondary standards*
  - *The properties of standard solution*
  - *Fundamental Relation between quantities of reacting substances*
  - *End and Equivalence points in volumetric analysis*

الكتب الأساسية:

Fundamental of analytical chemistry, D.A. Skoog, D. M. West, F. J. Holler and S. R. Crouch, 8<sup>th</sup> ed., 2004, Brooks/Cole.

المرجع المساند:

Analytical chemistry, "Theoretical and Metrological Fundamentals", K. Danzer, 1<sup>st</sup> ed., 2006, Springer.