

- *Equilibrium in Oxidation - Reduction system*
 - *Balancing Oxidation - Reduction equations, Oxidizing and Reducing agent*
 - *Standard reduction potential*
- *Electrochemical cells*
 - *Schematic representation of cells, Half - cell reaction and potential, Nernst Equation*
 - *Calculation of cell potential, Galvanic and electrolytic cell*
 - *Electrode potential, Types of electrode, Reference electrodes*
- *Determination of physical and chemical constants from Electrode potential*
 - *Equilibrium constant, Acid and base dissociation constant*
 - *Solubility product constant, Complex - formation constant*
 - *Spontaneous and Reversibility of cell reactions*
- *Oxidation - Reduction titrations*
 - *Derivation of oxidation - Reduction titration curves*
 - *Shapes of oxidation - reduction titration curves and their dependence on E and n*
 - *Equivalence - point potential characteristics*
 - *Graphical and mathematical methods used in detection of the equivalence point*
 - *Oxidation - Reduction indicators, Transition potential for Redox indicators*
 - *Other methods of detection Redox end point*
- *Typical Redox titration system*
 - *Titration of single component, Titration of mixtures*
 - *Titration that yield multiple products*
- *Application of strong oxidizing agents*
 - *Potassium permanganate*
 - *Quadrivalent cerium*
 - *Potassium dichromate*
 - *Other strong oxidizing agents*
 - *(Classical Separation techniques)*

الكتب الأساسية:

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

المرجع المساند:

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