

PMT8J002

ELECTROMETALLURGY

Module I (12 Hours)

Principles of Electrochemistry: Equilibrium Potential; Nernst Equation; Polarization and over voltage; EMF and Galvanic Series.

Module II (12 Hours)

Electroplating: Principles of electrodeposition of single Metals and alloys; preplating operations; plating baths; throwing power; electroless plating; electroforming; testing of electrodeposits; Anodic Electrometallurgical Processes-Anodizing, Electro-cleaning, Electro-polishing, Electrolytic etching, Electrolytic machining and grinding

Module III (12 Hours)

Electro winning and Electro refining: special features of electrochemical extraction & refining of metals and electrochemical extraction & refining of important metals like copper, zinc and aluminium.

Books for Reference:

1. *Introduction to Electrochemistry*, by S. Glasstone.
2. *An Introduction to Electrometallurgy*, by Sharan & Narain, Standard Publishers Distributors, Delhi
3. *Electrochemical Engineering*, by Mantell.
4. *Principles of Electroplating and Electroforming*, by Blum and Hogaboom.
1. *5.Fundamental aspects of electrometallurgy*, by K.I.Popov, S.S. Djokic, B.N.Grgur, Kluwer Academic / Plenum Publishers