APPLIED CHEMISTRY (BS-ADP 7th Semester)

Module Code:	**Chem-431**
Module title:	**Steel & Metal Finishing**
Name of Scheme:	**BS-ADP 7th Semester**
Department:	**School of Chemistry**
Faculty:	**Science**
Module Type:	**Compulsory**
Module Rating:	**2 credits**

OBJECTIVES

The students will learn about the metallurgical operation regarding steel industry as well as classical and advance technologies to save iron from corrosion.

SYLLABUS OUTLINE:

1. Steel Industry:

Steel – Mechanical properties of materials and change with respect to temperature, phase diagram of Fe-C system, manufacturing of steel, classification of steel, heat treatment of steel, important alloys of iron and their applications. Types of Corrosion and passivation techniques

2. Metal Finishing Technology:

Introduction, need for surface treatment, different surface finishing processes, basics of electrodeposition, electroplating principles, electrochemistry applied to electroplating, mechanical preparation of surfaces - pickling, cleaning, rinsing, composition and conditions of plating bath, electroplating of metals-chromium, nickel, electroplating of plastics, electroplating waste treatment and metal recovery.

RECOMMENDED BOOKS:

1. Applied Chemistry, Haq Nawaz Bhatti and Muhammad Salman, 2017, Caravan Book Publisher, Pakistan.
2. Chemistry of iron and Steel Manufacture, C. Bodsworth, Longman Press, London, 1963.
3. Graham's Electroplating Engineering Hand Book, Ed. L.J. Durney, CBS Publishers and Distributors, New Delhi. (1997).
4. Nickel and Chromium plating, J.K. Dennis & T.E. Such, Newness Butterworth, London (1972).