

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
CHEM-416	Applied Chemistry (Sp. Theory-II)	4	VII
Year	Discipline		
4	Chemistry		

SYLLABUS OUTLINE:

1. Steel, Metallurgical Products and Electroplating:

(a) **Steel and Metallurgical Products:**

Manufacture of cast iron and steel, wrought iron, formation of alloys, heat treatment of steel, classification of steel, passivity, different theories of rusting of iron and its prevention.

(b) **Electroplating:**

Principle of electroplating, purpose of electroplating, different processes involved in electroplating, chrome plating, nickel plating and electroplating of plastics.

2. Textile Dyeing:

Color and chemical constitution, Important classes of chromogens, Classification and nomenclature of dyes, manufacturing of dye intermediates and dyes, Selection of dyes for wool, cellulosic and synthetic fibers, Theory of Coloration, Coloration of wool, cellulosic and synthetic fibers.

3. Analytical Techniques and on-line analysis in Industry:

(a) **Spectroscopy:**

Use of different spectroscopic techniques like FES, AAS and Spectrophotometry for the quality control of raw materials, intermediates and final products in various industries.

(b) **Chromatography:**

Use of Thin layer chromatography, gas chromatography and HPLC in pharmaceutical and other industries.

(c) **On-Line Analysis and Automation:**

Significance of on-line analysis and automation of analytical techniques in industry; Classification of techniques w.r.t. automation, Use of microprocessor in conjugation with automation and on-line analysis, different types of automatic analyzers.

RECOMMENDED BOOKS:

1. Chemistry of iron and Steel Manufacture, C.Bodsworth, Longman Press, London, 1963.
2. Instrumental method of Analysis, Willar Merritt Dean Settle, Seventh Edition (1986)
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).
5. T. B. of Quantitative Inorganic Analysis, Vogel's Ed-4th, Longman Group Limited (1978).
6. Instrumental Analysis, Gary D. Christain, 1978, Introduction to Instrumental Analysis by Braun, McGraw-Hill Book company, 1987.

7. Dyes and Dyeing, C.E. Pellow, Abhishek Publishers, 1998.
8. Textile Dyes and Pigments, H. Panda, NIIR Publishers.
9. The Chemistry of Synthetic Dyes and Pigments, H. A. Lubs, Reinhold Publishing Corporation, 1955.