

APPLIED CHEMISTRY (BS-ADP 6th Semester)

Module Code:	Chem-331
Module title:	Water Treatment and Cleansers
Name of Scheme:	BS-ADP 6th Semester
Department:	School of Chemistry
Faculty:	Science
Module Type:	Optional
Module Rating:	2 credits

OBJECTIVES

This course content will help the students to understand the chemistry of water regarding its industrial use especially. It will also help them to learn about the operations and processes involved in manufacturing of soaps and detergents.

SYLLABUS OUTLINE:

1. Water For Industry:

Importance of Water in industry; Criteria of water quality for industrial use; Water hardness; softening of water by classical methods, Ion-exchange, Demineralization, Reverse osmosis and Distillation; Boiler Scaling, types, effects and mechanism; Removal of Boiler scales, Physical and Chemical methods.

2. Soaps, Detergents And Disinfectants:

Soaps – Introduction, types, raw materials, counter-current method for soap manufacturing, recovery glycerin from spent lye and sweet water, builders and Additives.

Detergents – Introduction, theory and working of detergents, cationic, anionic and non-ionic and amphoteric detergents, synthesis of typical anionic detergents, fabric softener (introduction and mechanism of action), Environmental impact of detergents.

Disinfectants – Introduction, types and applications.

RECOMMENDED BOOKS:

1. Applied Chemistry, Haq Nawaz Bhatti and Muhammad Salman, 2017, Caravan Book Publisher, Pakistan.
2. Water Supply and Sewerage, T.J.McGhee, McGraw Hill Book Co. New York.(1991)
3. Hand Book of Industrial Chemicals, By SIRI Board of Consultants and Engineers,
4. Shereve's Chemical Process Industries, 5th Ed.1975 by G.T.Austin McGraw Hill Book Co. New York.
5. Industrial chemistry, B. K. Sharma Krishna Prakashan Media (P) Ltd., Ed-15 (2006)