

APPLIED CHEMISTRY (BS-ADP 8th Semester)

Module Code:	Chem-473
Module title:	Agro-industries
Name of Scheme:	BS-ADP 8th Semester
Department:	School of Chemistry
Faculty:	Science
Module Type:	Compulsory
Module Rating:	2 credits

OBJECTIVES

This course content will increase the knowledge of the students regards the processes involved in Agro-based industries especially Fertilizers and Sugar.

SYLLABUS OUTLINE:

1. Sugar and Fermentation Industries:

Sugar - Importance of sugar industry, chemistry and sources of sucrose, manufacture of raw and refined sugar with flow sheet, estimation of sugar (physical and chemical methods)

Fermentation - importance of various fermentation industries, basic requirements for fermentation, steps in fermentation process. Manufacture of alcohol from molasses, preparation of absolute alcohol, proof spirit, and denatured spirit.

2. Fertilizers

Need of Fertilizers; Classification of Fertilizers, Importance of Macro- and Micro-nutrients; Raw materials along with their sources, manufacturing procedure, flowsheet(s) and assimilation in soil for important fertilizers include Ammonia, Urea, Calcium ammonium Nitrate, Calcium Cyanamide, diammonium hydrogen phosphate, Calcium superphosphate, Calcium triple superphosphate, potash fertilizers, Organic Compost.

RECOMMENDED BOOKS:

1. Applied Chemistry, Haq Nawaz Bhatti and Muhammad Salman, 2017, Caravan Book Publisher, Pakistan.
2. Pulp and Paper Technology, Testing and Applications, K.P. Rao (2003), CBS Publishers.
3. Chemistry of Pulp and Paper making, Edwin Sutermeister, Ed-3rd (1946)
4. Fertilizers and Soil Fertility, U.S.Jones, Reston Publishing Co. Virginia, 1979.
5. Industrial chemistry, B. K. Sharma, Krishna Prakashan Media (P) Ltd., Ed-15 (2006).
6. Shereve's Chemical Process Industries, 5th Ed.1975, by G.T.Austin, McGraw Hill Book Co. New York.