



CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of CHEMISTRY

Semester 1st to 3rd (Multi-Disciplinary Course)

Course Title: Applied Chemistry

Course Code: UGCHM22D101

Credits: 3

Contact Hrs: 45

Max. Marks: 75

External: 55; Min Marks: 22

Internal (Continuous Assessment): 20 Marks, Min Marks: 08

Course Objectives:

- To introduce the students to basic concepts of water chemistry.
- To acquaint the students with chemistry of common house hold chemicals.
- To impart the students with the ability to prepare simple polymers and analyze certain common household chemicals.

Course outcomes: The students after learning the course will be able to:

- Understand chemistry of water.
- Understand use and importance of house hold chemicals in day to day life.
- Understand cosmetic chemistry.
- Understand basics of polymers.

UNIT-I: Water Chemistry

(15 Hrs)

Water: Molecular structure and its unique properties. Composition of water. Hard and Soft water. Water quality parameters: Dissolved oxygen, metal ions (As, Hg and Pb), chloride, phosphate and nitrate. Treatment of potable water; chlorination, ozonation and UV radiation.

UNIT-II: Household Chemicals

(15 Hrs)

Chemistry of Soaps, Detergents, Optical Brighteners and Bleaching agents, Shampoos, Conditioners, Hair Dyes, Deodorants and Antiperspirants, Perfumes, Tooth Pastes and Sunscreen Lotions.

UNIT-III: Polymers:

(15 Hrs)

Types of Polymers and their Characteristics: "The big six Polymers": Low Density Polyethylene (LDPE), High Density Polyethylene (HDPE), Polypropylene(PP), Polystyrene (PS), Polyvinyl Chloride (PVC) and Polyethylene-Tetra phthalate (PET or PETE)- their chemical characteristics and uses.

Books Recommended:

- ❖ Environmental Chemistry; S. E. Manahan (6th /7th /8th/9thEdns); Lewis Publishers.
- ❖ Environmental Chemistry; 2ndedn; Colin Baird; Freeman & Co; 1991.
- ❖ Principles of Modern Chemistry; 2nd edn; Oxtoby and Nachtrieb; Saunders College Publications; 1987.
- ❖ Chemistry Fundamentals An Environmental Prospective; 2nd edn; Buell and Girad; Jones and Barlett; 2013.
- ❖ www.chemistryincontext; (American Chemical Society)
- ❖ Cosmetic formulation, Principles and practice; Heather A. E Binson, Michael S. Roberts, VaniaRodriguesLeite-Silva, Kenneth A. Watters, CRC press (Taylor and Francis group).
- ❖ Vogel's Textbook of Quantitative chemical Analysis; 5th edn; Jeffery, Bassett; (ELBS, 1989).
- ❖ Quantitative Analysis; 6thedn; Day, Underwood (Printice Hall, 1993).
- ❖ Analytical Chemistry, 6thEd; D. Christian, Wiley.
- ❖ Comprehensive Practical Organic Chemistry, V. K. Ahluwalia and Renu Aggarwal, (University Press-2000).
- ❖ Text book of Polymer science; Billmeyer F. W.; John Wiley and Sons; Inc.