CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of CHEMISTRY

Semester 1st Skill Enhancement Course (SEC)

Course Title: Chemistry in Action-I

Course Code: UGCHM22S103 **Max. Marks 100**
Credits: 4 (Theory: 1, Practical: 3) **Theory External: 15; Min Marks: 06**
Contact Hrs: 105 (Theory: 15, Practical: 90) **Theory Internal (Continuous Assessment): 10 Marks, Min Marks: 04**
Practical Experimental Basis= 45 Marks, Min. Marks: 18
Practical Internal (Continuous Assessment): 30 Marks, Min. Marks: 12

Objectives:

- To introduce the students to basic concepts of solution chemistry
- 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 analyze and synthesize certain common household chemicals.

Learning outcomes: After successful completion of the course, students will be able to:

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

THOERY:

UNIT-I: Chemistry in Action-

- Solutions: Classification of solutions based on physical state, Molecular weight, Equivalent weight, Concept of gram equivalent, Concentration Terms (Molarity, Molality, Normality, Mole Fraction, W/W %, V/V%, W/V%, ppm).
- Water: Molecular structure of water, Properties of Water. Hard water and Soft Water. Types of hardness (Temporary Hardness and Permanent hardness), Water Quality Parameters:
- Chemistry of House Hold Chemicals- Soaps and Detergents.

UNIT-II: Chemistry in Action-Practice (I)

- Preparation of Standard Solutions (Oxalic Acid, Sodium Hydroxide).
- Preparation of Standard Solutions (Potassium Permanganate and Potassium Dichromate).
- Dilution of Standard Solutions.
- Determination of Concentration Of acetic acid in commercial vinegar using NaOH.

PRACTICALS:

UNIT-III: Chemistry In Action-Practice (II)

- Estimation of Hardness of Water Using EDTA .
- Determination of TDS in a given Sample of Water.
- Determination of BOD and COD of Various Water Samples.
- Visit to water testing Laboratories and Centres.

UNIT-IV: Chemistry In Action-Practice (III)

- Manufacture of Soap (one method).
- Manufacture of Detergent (one method).
- To study the foaming capacity of different washing Soaps and the effect of addition of Sodium Carbonate on them.
- Visit to manufacturing and industrial units.

Books Recommended:

- Vogel's Textbook of Quantitative chemical Analysis; 5th edn; Jeffery, Bassett; (ELBS, 1989).
- Quantitative Analysis; 6thedn; Day, Underwood (Printice Hall, 1993).
- Analytical Chemistry, Skoog (latest edition).
- Advanced Practical Physical Chemistry, J. B. Yadav