

**DEPARTMENT OF CHEMISTRY**

**OPEN ELECTIVE BY BANGALORE CENTRAL UNIVERSITY-I SEMESTER**

**CHEMISTRY IN DAILY LIFE**

| <b>Number of Theory Credits</b> | <b>Number of lecture hours/ semester</b> | <b>Number of practical Credits</b> | <b>Number of practical hours/ semesters</b> |
|---------------------------------|--|------------------------------------|---|
| <b>3</b>                        | <b>42</b>                                | <b>-</b>                           | <b>42</b>                                   |

| <b>Content of Theory Course 1</b>   | <b>42 Hrs</b> |
|---|---------------|
| <b>Unit – 1</b>   | <b>14</b>     |
| <p><b>Dairy Products:</b> Composition of milk and milk products. Analysis of fat content, minerals in milk and butter. Estimation of added water in milk. Beverages: Analysis of caffeine in coffee and tea, detection of chicory in coffee, chloral hydrate in toddy, determination of methyl alcohol in alcoholic beverages.</p> <p><b>Food additives, adulterants, and contaminants-</b> Food preservatives like benzoates, propionates, sorbates, disulphites. Artificial sweeteners: Aspartame, saccharin, dulcin, sucralose, and sodium cyclamate. Flavors: Vanillin, alkyl esters (fruit flavors), and monosodium glutamate.</p> <p><b>Artificial food colorants:</b> Coal tar dyes and non-permitted colors and metallic salts. Analysis of pesticide residues in food.</p> |               |
| <b>Unit - 2</b>   | <b>14</b>     |
| <p><b>Vitamins:</b> Classification and Nomenclature. Sources, deficiency diseases, and structures of Vitamin A1, Vitamin B1, Vitamin C, Vitamin D, Vitamin E &amp; Vitamin K1.</p> <p><b>Oils and fats:</b> Composition of edible oils, detection of purity, rancidity of fats and oil. Tests for adulterants like argemone oil and mineral oils. Halphen test.</p> <p><b>Soaps &amp; Detergents:</b> Definition, classification, manufacturing of soaps and detergents, composition and uses</p>   |               |
| <b>Unit - 3</b>   | <b>14</b>     |
| <p><b>Chemical and Renewable Energy Sources:</b> principles and applications of primary &amp; secondary batteries and fuel cells. Basics of solar energy, future energy storer.</p> <p><b>Polymers:</b> Basic concept of polymers, classification and characteristics of polymers. Applications of polymers as plastics in electronic, automobile components, medical fields, and aerospace materials. Problems of plastic waste management. Strategies for the development of environment-friendly polymers.</p>   |               |

## Text Books

1. B. K. Sharma: Introduction to Industrial Chemistry, Goel Publishing, Meerut (1998)
2. Medicinal Chemistry- Ashtoush Kar.
3. Analysis of Foods – H.E. Cox: 13.
4. Chemical Analysis of Foods – H.E. Cox and Pearson.
5. Foods: Facts and Principles. N. Shakuntala Many and S. Swamy, 4<sup>th</sup>ed. New Age International (1998)
6. Physical Chemistry – P I Atkins and J. de Paula – 7<sup>th</sup>Ed. 2002, Oxford University Press.
7. Handbook on Fertilizer Technology by Swaminathan and Goswamy, 6<sup>th</sup> ed. 2001, FAI.
8. Organic Chemistry by I. L. Finar, Vol. 1 & 2. 9. Polymer Science and Technology, J. R. Fired (Prentice Hall).