BSc Semester 1 – Chemistry (Hons)

Title of the Course: OEC-1: CHEMISTRY IN DAILY LIFE

Number of Theory Credits	Number of lecture hours/ semester	Number of practical Credits	Number of practical hours/ semesters
3	42	-	-

Content of Theory Course 1	42 Hrs
Unit – 1 Dairy products	8 hrs
Dairy Products: 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.	8
Unit-2 Adulteration and contamination of food	9 hrs
Food additives, adulterants, and contaminants- 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.	6 hrs
Artificial food colorants: Coal tar dyes and non-permitted colors and metallic salts. Analysis of pesticide residues in food.	3hrs
Unit – 3 Some important molecules	9 hrs
Vitamins: Classification and Nomenclature. Sources, deficiency diseases, and structures of Vitamin A1, Vitamin B1, Vitamin C, Vitamin D, Vitamin E & Vitamin K1. **Oils and fats**: Composition of edible oils, detection of purity, rancidity of fats and oil. Tests for adulterants like argemone oil and mineral oils. Halphen test. **Soaps & Detergents:** Definition, classification, manufacturing of soaps and detergents, composition and uses	9
Unit – 4 Chemical and Renewable Energy Sources	8 hrs
Chemical and Renewable Energy Sources: principles and applications of primary & secondary batteries and fuel cells. Basics of solar energy, future energy storer.	8
Unit – 5 Food products & Polymers	8 hrs
Food products and nutrients: Proteins, vitamins, carbohydrates, minerals, fats and their importance with examples. Deficiencies and respective diseases. Malnutrition Requirement of balanced and nutritious food	4
Polymers: 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.	4

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. Foods: Facts and Principles. N. Shakuntala Many and S. Swamy, 4th ed. New Age International (1998)
5. Physical Chemistry – P l Atkins and J. de Paula – 7th Ed. 2002, Oxford University Press.
7. Handbook on Fertilizer Technology by Swaminathan and Goswamy, 6th ed. 2001, FAI.

Reference Books

1. Organic Chemistry by I. L. Finar, Vol. 1 & 2. 9. Polymer Science and Technology, J. R. Fired (Prentice Hall).
2. Chemical Analysis of Foods – H.E. Cox and Pearson.
   https://ncert.nic.in/ncerts/l/lech207.pdf
   https://www.thoughtco.com/examples-of-chemistry-in-daily-life-606816
5. https://studiousguy.com/examples-of-chemistry-in-everyday-life/

Pedagogy

Formative Assessment	
Assessment Occasion/ type	**Weightage in Marks**
Internal Test	40
Sem End Exam	60
Total	100