

# UNDERGRADUATE SYLLABUS OF CHEMISTRY

Under FYUGP (NEP-2020)

**[MULTIDISCIPLINARY COURSE]**



**Department of Chemistry**  
Jagannath Barooah College  
(An Autonomous College Affiliated to Dibrugarh University)  
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## SEMESTER-I & II

<b>Paper Title</b>	<b>: CHEMISTRY IN EVERYDAY LIFE (THEORY)</b>
<b>Paper Code</b>	<b>: CHMMU-011 &amp; CHMMU- 021</b>
<b>Course No</b>	<b>: V- 01</b>
<b>Credits</b>	<b>: 03</b>
<b>No. of Classes</b>	<b>: 45</b>
<b>Total Theory Marks</b>	<b>: 75 [End Semester: 50; In Semester: 25]</b>

### **Course Objective:**

- To understand the chemical constituents in various day to day materials used by a common man like Tooth paste, Cosmetics, Soaps and detergents and Biomolecules.
- To understand the chemical constituents and applications in Food additives, adulterants and contaminants, Artificial food colorants,
- To understand the scientific reasons in various aspects and chemotherapy and its applications.
- To understand the basic constituents and applications in polymers, surface coatings, fertilizers, insecticides and pesticides, chemical explosives etc.

### **Expected Learner Outcome: Students will gain an understanding of**

- Chemistry of household chemical e.g. tooth paste, cosmetics, soap and detergents.
- Definition, classification and importance of carbohydrates, proteins.
- Therapeutic action of different drugs; chemistry of food additives, adulterants and artificial colorants.
- Petroleum products and their application; types, different fertilizers and polymers.

**UNIT- I: Household Chemicals:** Common chemicals used at home. **Tooth Paste & Cosmetics** –contents and uses. Toxic household chemicals and their effects (antifreeze, bleach, drain cleaners, carpet cleaners, ammonia, air fresheners), **Soaps and Detergents**- Types of soaps, synthetic detergents (neutral, anionic and cationic), cleansing action of detergents. Advantages and disadvantages of detergents over soaps.

**(8 Lectures; Marks: 10)**

**UNIT-II: Biomolecules: Carbohydrates**–Definition, classification and importance, **Proteins** - Elementary idea of amino acids, definition classification and importance, **Enzymes** - Basic idea and functions, **Hormones** - Elementary idea and functions, **Vitamins** - Classification and sources and deficiency diseases due to vitamins A, B, C, D, E and K. functions.

**(7 Lectures; Marks: 08)**

**UNIT-III: Chemotherapy:** Drugs and their classification. Therapeutic action of different classes of the drugs viz. analgesics, antibiotics, antacids, antihistamines, antimicrobials, contraceptives, antipyretics, antiseptics and neurologically active drugs. **Pharmaceutical Compounds:** Structure and Importance Classification, structure and therapeutic uses of antipyretics: Paracetamol, Analgesics: Ibuprofen, Antimalarials: Chloroquine. An elementary treatment of Antibiotics and detailed study of chloramphenicol, Medicinal values of curcumin (haldi), azadirachtin (neem), vitamin C and antacid (ranitidine).

**Food Additives, Adulterants and Contaminants:** Definition types and applications - Food preservatives like benzoates, propionates, sorbates, disulphites. **Artificial Sweeteners:** Aspartame, saccharin, dulcin, sucralose and sodium cyclamate. Flavours: Vanillin, alkylesters

(fruit flavours) and monosodium glutamate. **Artificial Food Colorants:** Coal tar dyes and non-permitted colours and metallic salts. Analysis of pesticide residues in food.

**(20 Lectures; Marks: 20)**

**UNIT-IV: Petroleum and Petrochemical Industry:** Composition of crude petroleum, Refining and different types of petroleum products and their applications.

**Fertilizers:** Different types of fertilizers, Uses of the following fertilizers: Urea, ammonium nitrate, calcium ammonium nitrate, ammonium phosphates; polyphosphate, superphosphate, compound and mixed fertilizers, potassium chloride, potassium sulphate. **Polymers:** Examples of synthetic polymers and their Uses (polythene, PVC, Polypropylene, nylon, taflon).

**(10 Lectures; Marks: 12)**

### **Recommended Books**

- Hawley's Condensed Chemical Dictionary by Richard J. Lewis. Call Number: REF 540.3 H31.
- Van Nostrand's Encyclopedia of Chemistry by Glenn D. Considine, Call Number: REF 540.3 V33C
- 2005.
- Macmillan Encyclopedia of Chemistry by Joseph J. Lagowski.
- NCERT 12<sup>th</sup> Standard Book and references therein.
- Chemistry in Daily Life: Third Edition Paperback – 1 January 2012 by Singh K.

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