UNIVERSITY OF LADAKH

SYLLABUS

OF

INTERDISCIPLINARY COURSE

OF

CHEMISTRY

(UNDER NEP – 2020)

(Implemented w.e.f Academic Session 2023-24)

UNIVERSITY OF LADAKH

SYLLABUS OF THE INTER-DISCIPLINARY COURSE IN CHEMISTRY
UNDER NATIONAL EDUCATION POLICY - 2020
(Session 2023-2024)

Semester: I **Credit: 03**
Course Title: Chemistry in Every Day Life
Course Code: PCS-CH-101-G **Duration of Course: 45 Hr.**
Maximum Marks: 75 **Minimum Marks: 27**

Objectives: To provide an understanding of biomolecules, Chemical composition of drugs and role of Chemistry in daily cosmetic Products. Through this course, students will get basic concept of Chemistry in everyday life.

Unit-I Biomolecules I 15 Hrs.

1.1: Carbohydrate: Definition, Classification and their importance. (Structure not Necessary)

1.2: Amino acid: Essential and non-essential amino acids, classification and their importance. (Structure not necessary)
1.3: Oils and fats: Definition, Classification, Differences and importance. Rancidity and hardening of oil.

1.4: Vitamins: Nomenclature, Classification, Source, Deficiency diseases of Vitamin A, B, C, D, E and K (Structure not necessary)
1.5: Minerals: Macro and Micro elements. Role of Sodium, Potassium, Calcium, Zinc and Iron.

Unit-II Chemotherapy 15 Hrs.

2.1: Definition with examples of – Antacid, Analgesics, Antipyretic, Antibiotic, Antiallergic, Antidiabetics, Antihypertensive, Anesthetics, Tranquilizers, Antiseptics and Disinfectants (Structure Not necessary).

Unit-III Chemistry of Commercial Products 15 Hrs.

3.1: Cleansing agent: Chemistry of Soap and Detergent.
3.2: Dental Chemistry: Composition of toothpaste, structure of teeth, dental caries, role of fluoride in preventing dental caries.
3.3: Hair Coloring and Curling: Composition of hair, Chemistry of hair coloring and hair Curling.
3.4: Plaster of Paris: Composition and uses. 3.5: Baking powder: Composition and uses.

References:
Essential /Recommended Readings

- Lehninger: Principles of biochemistry.
- Bahl Arun & Bahl B.S: A text book of organic Chemistry.
- Paula Yurkanis Bruice: Organic Chemistry; 7th edition, Pearson.
- S.P.Bhuta Chemistry of Biomolecules, 2nd edition.

- Ayaz Mohmood Dar: Cosmetic Chemistry

Suggestive Readings

- Chittranjan Bhakta: Organic Chemistry
- Thangamma Jacob: Text book of Applied Chemistry for home science and allied Science.
- Gurdeeep R. Chatwal: Organic Chemistry of natural Products, Vol-I & Vol-II
- Chemistry of Cosmetics, J.Chem Edu (ACS), 55 (12) 197

UNDERGRADUATE INTER-DISCIPLINARY COURSE IN CHEMISTRY (NEP-2020)

Semester: II **Credit: 03**
Course Title: Matter and Surroundings **Duration of Course: 45 Hr**
Course Code: PCS-CH 201 G

Maximum Marks: 75 **Minimum Marks: 27**

Objective: To provide an understanding of matters around us. After the completion of course students may able to get basic knowledge of atoms, properties and interconversion of different forms of matters.

Unit I: Introduction of matter. **15 Hrs.**

1.1 Introduction: Matter, atom, molecule and compounds. Classification of matter: physical and chemical, particle nature of matter, Fundamental particles, Homogeneous and heterogeneous materials.

1.2 Solid, liquid and gaseous state – Structure & their physical properties. Structure of water in different state.

1.3 Intermolecular interaction: wander walls force, Dipole-dipole interaction, induced-dipole interaction and ion- dipole interaction. Hydrogen bonding and its types. Effect of weak forces on melting and boiling point. Types of solids and their properties.

Unit II: Interconversion of states of matter. **15 Hrs.**

2.1 Temperature and temperature scale- Celsius scale and Kelvin scale.

2.2 Effect of temperature and pressure on states of matter. Melting point, latent heat, latent heat of fusion, boiling and boiling point, latent heat of vaporization, freezing and freezing point, evaporation and factors effecting evaporation.

2.3 Gas laws: Boyle law, Charles law, Gay Lusac's law and Avagardo law

2.4 Liquefication of gases, Viscosity and Surface tension (Only idea)

Unit III: Metals and Non- metals **15 Hrs.**

3.1 Metals: Definition, physical and chemical properties, reactivity series of metals,

3.2 Metallic Bond: Band Theory, Electrical Conductivity of Solids.

3.3 Non- metals: Physical and chemical properties, ions and it's types, ionic bond, properties of ionic compounds.

References:

- G.Chopra , H.Srivastava ,science book (NCERT) pradeeps Publications.
- Jagdamba Singh, H.C khera - Fundamental of chemistry.
- Theodore L brown,H Euugene ,Le may ,Jr Bruce ,E busten , J Murphy – Chemistry the central science Pearson publications.
- Rebecca, W. Keller Real Science book.b.High school chemistry.
- S Chand A text book of chemistry basics.,S Chand publications.