



**Shiksha Mandal's  
Bajaj College of Science, Wardha  
(An Autonomous Institution)**

**Department of Chemistry**

**Proposed Syllabus for Four Year B.Sc. Honors  
with Chemistry as Major**

**GENERIC ELECTIVE (GE)**

**(To be opted by Students having major subject other than  
Chemistry)**

**Semester I course in Chemistry**

**Syllabus under Autonomy**

**(Discussed and approved in BOS Meeting 18-April-2023 to  
be implemented from Academic Session 2023-24)**

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**Generic Elective**

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**UCHG111 - Chemistry in Everyday life**

**[30 Hrs]**

**[Credits 2]**

**Course Description**

The course provides the students with the necessary information and practice to explore a range of chemistry-based topics relating to our everyday lives, with an emphasis on the important role of organic chemistry – the study of carbon-containing organic compounds. In this course, students will study the important drugs that we use in our daily life. Besides drugs, students also study food additives. Food additives are compounds that we add to our food for a variety of reasons, including preservation and nutritional value. Cleaning agents such as soaps and detergents are also an important part of this course. We use soaps to wash in normal water, but these soaps do not work in hard water.

**Course Objectives:**

- To understand chemistry in daily life;
- to learn the basis of drug classification;
- to know how different types of drugs work in the body;
- to learn about artificial sweeteners and food preservatives;
- to know about the chemistry of cleaning chemicals.

**Course Learning Outcomes:**

On completion of this theory course, students will be able to-

- visualise the importance of Chemistry in daily life;
- describe the basis of classification of drugs;
- explore how various types of drugs function in the body;
- know about artificial sweetening agents and food preservatives;

- discuss the chemistry of cleansing agents.

## **Contents:**

### **Unit: - I Drugs: (10 Hrs)**

Drugs and their Classification (On the Basis of Drug Action, On the Basis of Pharmacological Effect, On the Basis of Molecular Targets), Therapeutic Action of Different Classes of Drugs (**Antacids, Antihistamines, Antimicrobials, Neurologically Active Drugs**), Definition, Common Examples, Uses

### **Unit: - II Food Additives: (10 Hrs)**

Preservatives, artificial sweetening agents, the idea of antioxidants Preservatives: role, example (Sodium benzoate). Artificial sweetening agents: roles and examples (aspartame, saccharine, sucralose, alitame and monosodium glutamate)

### **Unit: - III Cleansing Agents (Soap and Detergents): (10 Hrs)**

Introduction & definition, classification and some important examples, structure, synthesis, cleansing action. Saponification value & its determination. Advantages of detergents over soaps.

## **References:**

- Chemistry in daily life, Kirpal Sigh, PHI Learning Pvt. Ltd., 2012 – Science
- Chemistry in Action: The Molecules of Everyday Life Nina Morgan Oxford University Press, 1995



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**GENERIC ELECTIVE (GE)**

**(To be opted by Students having major subject other than  
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**Semester II course in Chemistry**

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**Generic Elective**

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**UCHG121 Food Adulteration**

**[30 Hrs]**

**[Credits 2]**

**Course description:**

The purpose of this generic elective is to enable non-chemistry student understand the chemistry behind common food adulterants and their detection. The food safety rules and regulation is an important aspect of food industry. The knowledge gained from this course will be helpful for learners to prepare for careers in food industries and food safety laboratories.

**Course Objectives:**

- To educate students about food adulteration and their types.
- To introduce students with common food adulterants and their methods of detection.
- To make students aware of food safety and standardization acts.

**Course Learning Outcomes:**

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

- Understand the adulteration of common foods and their adverse impact on health.
- Comprehend certain basic skills of detecting adulteration in common foods.
- Apply their knowledge of food safety and regulations.

**Contents:**

**Unit I: Introduction and Types of Adulterants**

**(10 Hrs)**

Adulteration – Introduction and definition. Types of Adulterants - Poisonous substances, Foreign matter, cheap substitutes, Spoiled parts. Adulteration through Food Additives –Intentional and incidental. General Impact on Human Health.

**Unit II: Adulteration of Common Foods and Methods of Detection (10 Hrs)**

Adulteration of Common Foods, Means of Adulteration, Methods of Detection of Adulterants in the following Foods: Milk, Oil, Grain, Sugar, Spices and Condiments, Processed Food, Fruits and Vegetables, Additives and Sweetening agents (at least two methods of detection for each food item).

**Unit III: Laws and Procedures on Adulteration (10 Hrs)**

Highlights of Food Safety and Standards Act 2006 (FSSA), Food Safety and Standards Authority of India, Rules and Procedures of Local Authorities, Role of Voluntary Agencies - AGMARK, I.S.I. Quality control laboratories of Companies, Private testing laboratories, Quality control laboratories of Consumer co-operatives.

**Reference books and Websites:**

1. A first course in Food Analysis, A.Y. Sathe, New Age International (P) Ltd., 1999.
2. Food Safety, case studies – R. V. Bhat, NIN, 1992.
3. DART- Detect adulteration with rapid test. FSSAI, Imprinting Trust, assuring safe and nutritious food, Ministry of Health and Family Welfare, Government of India.
4. Rapid detection of food adulterants and contaminants Theory and Practice, S. N. Jh, 2016, Kindle Edition.
5. Domestic Tests for Food Adulterations, H. G. Christian, Forgotten books.
6. A Laboratory Manual of Food Analysis, S. Sehgal, Wiley Publishers.
7. Food Safety and Standards Act, 2006. Bare ACT, November 2020, Commercial law publishers.

**Mode of evaluation:**

Continuous Internal Assessment (No end semester examination)  
(Poster presentation / Project/ Presentation/ Assignment/ quiz)

**Total Marks: 50**

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