St. Xavier's College (Autonomous), Ahmedabad

Syllabus of Semester – II of the following departments under Faculty of Science based on Under Graduate Curriculum Framework - 2023 to be implemented from the Academic Year 2024-25.

FACULTY OF SCIENCE

DEPARTMENT OF CHEMISTRY

BSc. (Hons.) Chemistry
Category – IV

MDC: FOOD CHEMISTRY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-requisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
FOOD CHEMISTRY MDC204C	4	0	0	10 + 2 from a recognized board in Science stream	Basic Knowledge of Chemistry

LEARNING OBJECTIVES (LO)	
LO-1	To learn about basics of food chemistry, regulatory laws regarding food safety and food adulteration.
LO-2	To learn about various additives used during food processing and its harmful effects if any.
LO-3	Students will learn about the basic constituents of the food, its sources and its nutritional importance OR Students will learn about the effect of cooking on the food quality such as the effect of heating, pH etc. Also students will understand the importance of selecting proper cookware for cooking
LO-4	Students will analyze few common food adulterants by simple experiments.
COURSE OUTCOMES (CO)	

On Completion of this course, the student will be able to	
CO-1	Understand the harmful effects of adulterants and the regulation laws existing.
CO-2	Understand regarding the common food additives that may present in various food items of daily usage.
CO-3	Decide the food that may choose for a proper nutritious diet OR Decide the cooking method and the cooking utensils for various food items.
CO-4	Perform common testing of adulterants.

Unit-1 INTRODUCTION TO FOOD SCIENCE AND FOOD ADULTERATION (15 L)

A Introduction to food science:

Introduction to food technology, General aspect of food industry, World food demand, Food demand scenario in India, Name of Food Laws and Standards of India and International laws, Constituents of food, Food pyramid, Different food groups. Principles of planning diets, quality and nutritive aspects.

B Food Adulteration:

Types of food adulteration, Some common adulterants and their health effects, Need for the detection of food adulteration, Harmful effects of adulterants, Some common food adulteration detection tests

Unit-2: FOOD ADDITIVES AND FLAVOURS (15 L)

Acidity Regulators, Antioxidants and Antimicrobial Agents, Additives to prevent food spoilage: Synthetic and natural preservatives, antioxidants. Use and health effects. Coloring agents and flavoring agents, emulsifiers, Essential fatty acids as food additives, Stabilizers and Thickeners, Flavor Enhancers And Sweeteners, Other Food Additives & Food Ingredients.

Unit-3: CHEMISTRY OF COOKING (15 L)

A Chemistry of traditional cooking, Systems for heating and cooling food products, Thermal properties of foods, modes of heat transfer, Freezing systems, frozen food properties, Freezing time refrigeration system for food products, Food preservation by irradiation, preservation by concentration, food processing, food packaging methods, fundamentals of canning,

B A comparison of the materials used to make modern cooking utensils such as copper, anodized cookware, steel and cast-iron pots and pans, Teflon coated frying pans, ceramic dishes and Triple coated steel.

UNIT 4-PRACTICALS

1. Milk and Milk Products
2. Oils and Fats
3. Sugars and Confectionery
4. Food Grains and its Products
5. Salt, Spices and Condiments
6. Fruits and Vegetables
7. Beverages

Suggestive Reading:

1. Food Science by B Srilakshmi, New Age International Publishers, 8th Edition.
2. Handbook of Food Chemistry by Peter C K Chung, Springer publication
3. Food Chemistry by T Anand and Rakesh Kumar
4. Food Chemistry: by Lillian Hoagland, Meyer 2004 Publication