



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Vocation

Level: Under Graduate

Branch: Food Processing and Quality Control

Course / Subject Code: BV03009031

Course / Subject Name: Food Science & Nutrition

w. e. f. Academic Year:	2024-25
Semester:	3
Category of the Course:	Core Courses

Prerequisite:	Basic understanding of biology and chemistry at the undergraduate level.
Rationale:	The course introduces the scientific principles of food science and nutrition, focusing on understanding food components, their functions, interactions, and roles in human health. It aims to develop the ability to assess, analyze, and apply nutritional principles to improve individual and public health.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Understand the basic concepts of food science and nutrition and their relationship to health and well-being.
02	Evaluate the nutritional requirements of different population groups across the life cycle.
03	Apply principles of food preservation, processing, and safety to maintain food quality and prevent spoilage.
04	Develop innovative solutions to nutritional challenges through research, analysis, and practical applications.

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
3	0	0	3	50	0	0	0	50

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	Introduction to Food Science and Nutrition Definition and scope of food science and nutrition	06	10



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Vocation

Level: Under Graduate

Branch: Food Processing and Quality Control

Course / Subject Code: BV03009031

Course / Subject Name: Food Science & Nutrition

	Importance of nutrition in health and well-being Food groups and balanced diet Overview of macronutrients and micronutrients		
2.	Nutrients and their Functions Macronutrients: Carbohydrates, proteins, fats - sources, functions, and digestion Micronutrients: Vitamins and minerals - types, deficiency diseases Water: Role in metabolism and hydration Nutritional requirements for different age groups (infants, children, adults, elderly)	10	25
3.	Food Processing and Preservation Principles and methods of food processing (thermal, non-thermal, fermentation) Food preservation techniques (canning, freezing, drying, pickling) Impact of processing on nutrient retention Food additives: Types and their roles	10	20
4.	Food Safety and Quality (20%) Food spoilage: Causes and prevention Food safety standards and regulations (FSSAI, Codex Alimentarius) Hazard Analysis and Critical Control Points (HACCP) Emerging concerns: GMOs, pesticides, and food allergies	09	20
5.	Diet Planning and Nutrition in Health Management (25%) Principles of diet planning Therapeutic nutrition: Role in managing lifestyle diseases (diabetes, cardiovascular, obesity) Functional foods and nutraceuticals Trends in nutrition research: Personalized nutrition and nutrigenomics	10	25
Total		45	100

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	20	20	20	20	10

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Vocation

Level: Under Graduate

Branch: Food Processing and Quality Control

Course / Subject Code: BV03009031

Course / Subject Name: Food Science & Nutrition

References/Suggested Learning Resources:

(a) Books:

1. Food Science" by B. Srilakshmi (New Age International, Indian author)
2. Essentials of Human Nutrition" by Stuart A. Schwartzbard
3. Nutrition and Dietetics" by Shubhangini A. Joshi

(b) Open-source software and website:

1. National Institute of Nutrition (ICMR) website
2. ePGPathshala (UGC-MHRD Initiative)
3. FAO Nutrition resources (www.fao.org)

• Software & Tools:

4. DietCal (for diet planning)
5. Food safety management tools

Suggested Course Practical List:

1. Analysis of food components (carbohydrates, proteins, fats)
2. Identification of vitamins and minerals in food samples
3. Demonstration of food processing techniques
4. Preparing a balanced diet for specific age groups
5. Shelf-life evaluation of packaged foods

List of Laboratory/Learning Resources Required:

1. Food analysis kits (carbohydrates, proteins, fats)
2. pH meters and water activity analyzers
3. Preserved food samples and fresh food materials
4. Cooking utensils and tools for diet planning

Suggested Project List:

1. Designing a meal plan for malnourished children in rural areas
2. Analyzing the impact of processing on nutrient content in fruits and vegetables
3. Developing low-cost, nutrient-dense food recipes
4. Survey on food safety awareness among consumers

Suggested Activities for Students:

1. Conduct a workshop on balanced diet preparation for school children
2. Visit to a food processing unit and submit a report
3. Case study analysis of a diet-related disease
4. Organize a seminar on emerging nutrition trends

* * * * *