



# GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Vocation

Level: Under Graduate

Branch: Food Processing and Quality Control

Subject Code: BV01009011

Subject Name: Introduction to Food Processing and Quality Control

w. e. f. Academic Year:	2024-25
Semester:	1
Category of the Course:	Core Course

<b>Prerequisite:</b>	NA
<b>Rationale:</b>	This course introduces students to the fundamental principles of food processing and quality control, emphasizing the significance of food industry practices in ensuring product safety, quality, and compliance with regulations. It is designed to equip students with essential knowledge in food composition, deterioration, preservation techniques, and safety management, which are critical to addressing challenges in food processing and enhancing food security

### Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Apply knowledge of food processing techniques to real-world scenarios
02	Assess the nutritional impact of various food processing methods.
03	Implement quality control measures to ensure food safety and quality.
04	Understand and apply food safety regulations and standards.

### 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
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1.	<b>Introduction to Food Processing</b> <ul style="list-style-type: none"><li>• Overview of food processing</li><li>• Historical developments and modern advancements</li><li>• Base units, Derived units and Supplementary units</li></ul>	7	16
2.	<b>Indian Food Industry</b> <ul style="list-style-type: none"><li>• Present status,</li><li>• Opportunities and challenges</li><li>• Sectors of Indian food industry</li><li>• Government initiatives for growth of food industry</li></ul>	7	16
3.	<b>Food Composition and Food Deterioration</b> <ul style="list-style-type: none"><li>• Macronutrients and micronutrients</li><li>• Basic concepts, factors affecting the food deterioration</li></ul>	6	13
4.	<b>Preservation Techniques</b> <ul style="list-style-type: none"><li>• Thermal processing: Pasteurization, sterilization</li><li>• Non-thermal processing: High-pressure processing, irradiation</li><li>• Chemical preservation: Additives, preservatives</li></ul>	6	13
5.	<b>Quality Control and Assurance</b> <ul style="list-style-type: none"><li>• Quality parameters: Texture, flavor, color, and nutritional value</li><li>• Testing and analytical methods</li><li>• HACCP (Hazard Analysis and Critical Control Points) and GMP (Good Manufacturing Practices)</li></ul>	7	16
6.	<b>Food Safety Management</b> <ul style="list-style-type: none"><li>• Foodborne illnesses and prevention</li><li>• Microbiological testing and control measure</li></ul>	6	13
7.	<b>Packaging and Labelling</b> <ul style="list-style-type: none"><li>• Types of packaging materials and technologies</li><li>• Labelling regulations and requirements</li></ul>	6	13
<b>Total</b>		<b>45</b>	<b>100</b>

## Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	20	15	15	15	15

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



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## **References/Suggested Learning Resources:**

### **(a) Books:**

1. "Food Processing Technology: Principles and Practice" by P.J. Fellows
2. "Introduction to Food Engineering" by R. Paul Singh and Dennis R. Heldman
3. "Food Quality Assurance: Principles and Practices" by Inteaz Alli
4. "Food Safety: Theory and Practice" by Paul L. Knechtges
5. "Handbook of Food Processing: Food Safety, Quality, and Manufacturing Processes" edited by Theodoros Varzakas and Constantina Tzia
6. "Food Packaging: Principles and Practice" by Gordon L. Robertson

### **(b) Open-source software and website:**

1. USDA FoodData Central: <https://fdc.nal.usda.gov/>  
A comprehensive resource for food composition, nutrient profiles, and related research.
2. Food Safety and Standards Authority of India (FSSAI): <https://fssai.gov.in/>  
Offers guidelines, safety standards, and updates on food regulations and quality control in India.
3. Codex Alimentarius: <http://www.fao.org/fao-who-codexalimentarius/>  
Provides international standards, guidelines, and codes of practice for food safety and quality control.
4. Open Food Facts: <https://world.openfoodfacts.org/>  
An open-source database with information on food products, ingredients, and nutrition, contributed by a global community.
5. European Food Safety Authority (EFSA): <https://www.efsa.europa.eu/>  
European-based resources on food safety research, risk assessments, and food quality guidelines.
6. International Food Information Council (IFIC): <https://foodinsight.org/>  
Provides science-based information on food safety, nutrition, and health.

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