

GUJARAT TECHNOLOGICAL UNIVERSITY

FOOD PROCESSING TECHNOLOGY INTRODUCTION TO FOOD PROCESSING TECHNOLOGY

SUBJECT CODE: 2131405

B.E. 3RD SEMESTER

Type of Course: Food Processing Technology

Prerequisite: Nil

Rationale: The main objective of introducing this subject in the degree course of food processing technology is to expose the student with fundamental knowledge on movement of liquid foods, fundamentals of heat transfer, status of food industries in India, preservation techniques and value added operations. The students would be exposed to various aspects of fundamentals of food processing.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P		Theory Marks			Practical Marks			
			ESE (E)	PA (M)		PA (V)		PA (I)		
				PA	ALA	ESE	OEP			
4	0	0	4	70	20	10	0	0	0	100

Content:

Sr. No.	Topics	Teaching Hrs.	Module Weightage (%)
1.	Engineering units and Dimensions Base units, Derived units and Supplementary units	04	8
2.	Present status of food Industry In India Prospects for future growth in India and Abroad	04	8
3	Food as a source of nutrients Function of Food-Physiological, Social, Psychological and specific. Recommended daily allowances for nutrients.	05	8
4.	Classifications and composition of foods Plant Foods - Cereals and Millets, Legumes and Pulses, Vegetables, Fruits, Nuts & Oil Seeds, Condiments & Spices. Animal Foods - Eggs, Milk and its products, Meat and Meat Products, Poultry Sea foods. Soft drinks. Semi Processed and Ready to Eat Foods.	06	15
5.	Steam Tables, Psychometric Chart Basic methods and applications	04	8
6.	Fundamentals of Mass and Energy balance Application of mass and energy balances in food engineering operations	06	15
7.	Units Operations Equipment and Machinery deployed in food processing Industry, Cleaning, Grading, Peeling, Cutting Balancing, Pulping, Size reduction, Separation	05	12

8.	Drying and Evaporation Moisture content, Moisture diffusion, Water Activity, Types of dryer	05	11
9	Food Deterioration, Preservation and Processing Basic concepts, factors affecting the food deterioration and different preservation techniques	02	05
10	Food Product Development and Design Quality control, Food Evaluation Methods.	03	05
11	Marketing of Foods and Food Products Statutory laws and requirements of Foods	03	05

Reference Books:

1. Food Preservation and Processing, Manoranjan Kalia & Sangita Sood.
2. Food Science, N. N. Potter, C B S Publishers & Distributors.
3. Food Facts & Principles, N. Shankuntala M.& M. Shadakshara S., Wiley Eastern Limited.
4. Unit Operations, K. M. Sahay and K. K. Singh.
5. Engineering of Dairy & Food Products, A. W. Farral

Course Outcomes:

At the end of this course students will be able to:

1. Describe the principals involved in the processing of the major types of food products
2. Understand the principles of food spoilage and the ways to prevent
3. Describe the function of food additives in food processing
4. Recognize the major food borne pathogens and means to control or prevent their growth in foods

List of Open Source Software/learning website

- <http://foodscience.uark.edu/>
- <http://www.ucc.ie/en/ace-dfsc/>
- <http://www.sciencedirect.com/science/book/>
- <http://ciftinnovation.org/food-processing>

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.