



# GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3161409

BAKERY AND CONFECTIONARY TECHNOLOGY

VI<sup>th</sup> SEMESTER

**Type of course:** Professional Core Course

**Prerequisite:** Nil

**Rationale:** This course will acquaint the students regarding the preparation of various bakery, sugar and chocolate confectionary products, their quality control, control of processing parameters and handling of equipment, which is essential for the students to perform efficiently and effectively in the industry

### Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

### Content:

Sr. No.	Content	Total Hrs	%Weightage
1	<b>Materials of Baking:</b> Wheat- Varieties, by-products of wheat milling, role of refined wheat flour; Leavening agents- Types, properties and their role; Shortenings- Role of shortening and forms used in bakery; Sweeteners; Role of emulsifiers, and antioxidants, their types; Ingredients from milk and eggs: Introduction, role and types; Other ingredients: flavours and colours.	10	26
2	<b>Bread Formulation and Processing:</b> Ingredients, details of manufacturing steps like fermentation, proofing, baking etc, Methods of bread preparation	8	21
3	<b>Cake Formulation and Processing:</b> Role of Ingredients, Cake formula, details of manufacturing steps, defects in cake -their causes and prevention	6	16
4	<b>Chocolate Confectionery:</b> Cocoa processing, details of confectionery manufacturing processes- grinding, refining, conching, tempering etc.	10	26
5	<b>Sugar Confectionery:</b> Introduction, classification of sugar confectionery, Processing of Hard boiled candy	4	11



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Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
19	18	20	21	22	0

**Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)**

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

### Reference Books:

1. Bakery Technology and Engineering: Samuel Matz
2. Bakery Science and Cereal technology: N. Khatarpaul, Grewal, Jood
3. Baking: Science and Industry: K.B. Kamaliya
4. Industrial Chocolate Manufacture: S.T. Beckett
5. Sugar Confectionery: Jackson and Lees

### Course Outcome:

Sr. No.	CO statement	Weightage (%)
CO-1	Understand the importance and role of various ingredients used in bakery and confectionary products.	25
CO-2	Understand the different methods of bread & cake making and their formulations.	15
CO-3	Understand the process of cocoa processing and chocolate manufacturing.	25
CO-4	Understand the different types of sugar confectionary products and their process.	35

### List of Experiments:

1. Introduction to bakery equipment
2. Determination of ash content of the given sample of white wheat flour
3. Estimation of water absorption power and gluten content of the given flour.
4. Determination of alcoholic acidity of the given sample of wheat flour.
5. Determination of sedimentation value of white wheat flour
6. Determination of yeast quality by its dough rising capacity
7. Preparation of plain biscuit in laboratory
8. Preparation of egg less cake.
9. Preparation of bread by straight dough method
10. Preparation of brown bread

### Major Equipment & Instruments:

- a. Baking oven
- b. SS working table
- c. Dough kneader



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- d. Baking trays
- e. Baking pans
- f. Bakery moulds
- g. Rolling pins
- h. Dough sheeter
- i. Dough cutter
- j. Dough rounder
- k. Cooling racks
- l. Slicer
- m. Sealing machine

**List of Open Source Software/learning website:**

- a. <http://www.bakerybazar.com/2010/05/process-flow-chart-for-bread.html>
- b. <https://food-science.uark.edu/>
- c. <http://www.ddegjust.ac.in/studymaterial/pgdbst/pgdbst-06.pdf>
- d. [http://www.nchm.gov.in/nchmct\\_adm](http://www.nchm.gov.in/nchmct_adm)