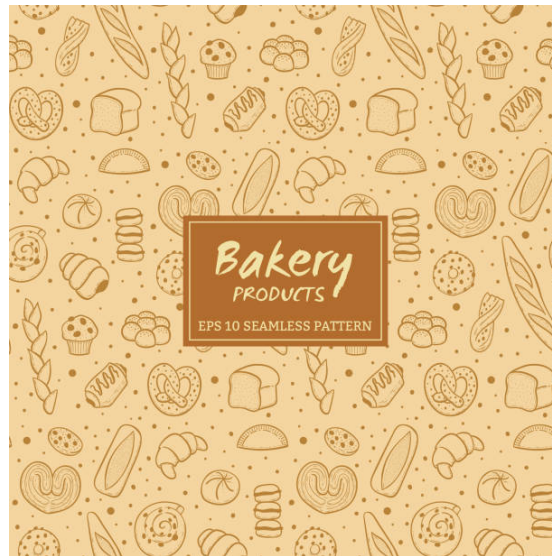


# Food and Bakery Science

## (Vocational)

### B. A. I Semester (NEP 2020)

## Bakery



A **bakery** is an establishment that produces and sells flour-based food baked in an oven such as bread, cookies, cakes, doughnuts, bagels, pastries, and pies. Some retail bakeries are also categorized as cafés, serving coffee and tea to customers who wish to consume the baked goods on the premises. Confectionery items are also made in most bakeries throughout the world.

Baking is a manner of cooking food by exposing it to direct heat or heated stones for long time under controlled temperature. Baking is not just limited to cakes, breads and biscuits but practically a wide range of sweet and savory foods such as pies, cookies, tarts, Baati (Indian baked bread consumed in North-West region), Rodgaa (Indian baked bread consumed in east Maharashtra region of India), and snacks can be baked. Baked food often comes up with aromatic food.

अगर किसी जगह पर केक (C**ake**), बिस्कुट (B**iscuit**) या ब्रेड (B**read**) का निर्माण किया जा रहा है, तो उसे बेकरी कहते हैं. वहीं जब कोई दुकानदार इन चीजों को ग्राहकों को बेचने लगता

है, तो ये बेकरी शॉप बन जाती है. बेकरी में तैयार किये जाने वाली चीजों को अच्छे से बेकड किया जाता है, जिसके बाद ये खाने में काफ़ी स्वादिष्ट लगती हैं.

बेकरी एक ऐसा प्रतिष्ठान है जो ब्रेड, कुकीज़, केक, डोनट्स, बैगल्स, पेस्ट्री और पाई जैसे ओवन में पकाए गए आटे पर आधारित भोजन का उत्पादन और बिक्री करता है। कुछ खुदरा बेकरियों को कैफे के रूप में भी वर्गीकृत किया गया है, जो उन ग्राहकों को कॉफी और चाय परोसते हैं जो परिसर में पके हुए माल का उपभोग करना चाहते हैं। दुनिया भर की अधिकांश बेकरियों में कन्फेक्शनरी आइटम भी बनाए जाते हैं।

There are five basic ingredients required for baking –

Flour

Sugar

Margarine

Baking Soda/Powder

Salt

बेकिंग के लिए पांच बुनियादी सामग्रियों की

आवश्यकता होती है -

आटा

चीनी

नकली मक्खन

बेकिंग सोडा/पाउडर

नमक



### Commodities Used in Baking

**Flour** – It is the basic ingredient of baking cookies, breads, cakes, muffins, pizzas, tarts, and pastries. Its variants are self-rising flour, wheat flour, all-purpose flour, cake flour, etc.

**Essence** – It is an extract acquired from a plant or other matter used for flavoring food. Some typical essence are almond, vanilla, saffron, lemon and rose.

**Margarine or Butter** – Margarine is made of refined vegetable oil, water, and milk. Butter is made of processing milk. These both are called shortening.

**Sugar** – It is used as food sweetener.

**Eggs** – They are used as leavening and binding agents and they can bring moisture in the cakes. The chefs need to add either yogurt or applesauce in eggless cakes.

**Baking Powder/Yeast** – It is used as a rising/leavening agent that gives softness and fluffy texture to cakes and breads. The baking powder is white fine powder made of Sodium

Bicarbonate, Potassium Bitartrate, and corn starch. The yeast comes in two variants – dry and liquid.

**Cocoa Powder** – It is used for introducing chocolate flavor to the food.

**Chocolate slabs** – They are used for acquiring flakes by grating and then using the flakes for garnishing and decorating cakes. They come in the variety of chocolate-milk-sugar proportion. Now chocolate drops or chips are also available in the market.

**Fruit Jams** – They are used for decorating sweet baked products.

**Milk** – It is used for softening batter for the cakes, breads, and cookies.

**Salt** – A pinch of salt is added into batter of sweet baked products to balance the taste of Baking powder and sugar.

### Some typical equipment required in baking are –

**Ovens** – They are used as a heating chambers for baking. Direct heat large kilns and modern electric ovens are used in food preparation units. The electric ovens provide high degree of precise temperature control and uniform heat.

**Mixing Machine** – It is used to mix all bread or cake ingredients together into soft dough or batter.

**Tins** – There are tins with various shapes and sizes used in baking. They create the resulting baked product in attractive shapes.

**Icing Bag with Nozzles** – The icing bags hold the icing. They are used in decorating cakes in a large variety of ways using nozzles of catchy shapes and widths. They provide a great way of filling small glasses and molds in a sophisticated manner.

**Baking Parchment** – It is a cellulose-based paper used as a non-stick surface. It is often thin and disposable.

**Knives** – Bakery knives are used for cutting loafs, cakes, and handling pieces of cakes.

**Cake Stands** – They are required to keep cakes of multiple tiers. Some of them are rotary. They provide circular motion that makes the process of cake decoration easy.

**Spatula** – They are flat tip spoons, used to fold the batter and fill the icing bag. Spatulas often have rubber tips.



## SCOPE OF BAKERY

- Bakery industry in India today has an important place in the industrial map of the country. Bakery products are an item of mass consumption in view of its low price and high nutrient value.
- With rapid growth and changing eating habits of people, bakery products have gained popularity among masses. The sector, typically, constitutes cakes, breads and biscuits.
- Bakery industry in India is on a growth curve.
- The sector which is difficult to define has indicated promising growth prospects and has been making rapid progress.
- The bakery industry has achieved third position in generating revenue among the processed food sector. The first and second segments are the wheat flour processing and fruits and vegetables processing, stated experts from the food industry.
- The bakery industry also is a lucrative sector for entrepreneurship in the food industry. This calls for honing skills in baking science and technology.
- With Globalization and India being viewed as a potential growth market, there has been a profusion of bakery chains springing up across the country. These include Au Bon Pain, the US-based bakery cafe chain, Monginis, Donut Baker, Cookie Man, Croissant, Café Coffee Day, Oven pick, Bread Talk, SAJ Industries Bisk Farm, Hot Bread, Birthday's, Donut Master and Cookie Jar. "For a bakery and cafe chains there are several challenges to meet when it comes to growth of the business and generating revenue.
- Some of the issues are procuring highest quality of ingredients, maintaining consistency in standards of food and managing efficient service in terms of hospitality.
- The main factors driving bakery industry are diverse. This is because the structure of the bakery industry comprises three segments namely need-based, basic hotel requirements and connoisseur requisites. The need-based category caters to products like bread and biscuits. Under hotels, it varies from breads to pastries, cakes, pizza and puffs. The connoisseur category focusses on international standard and will cover products like specialized pastries and cakes.
- Firstly, they should find out what the tastes of the native people are and price the items in accordance to the budget of the people. The bakery unit should be located at a place in the city, which attracts customers. The initial infrastructure may be of low budget and with small space.
- All is needed in a specialized oven, a marble top table, a mixie and a refrigerator in a small room. If a confectionery has to be set up an air conditioned room is mandatory.
- The products you make depends on the clientele, climate of the place and what ingredients are easily available. If you open a bakery in a warm country like India you can work with tropical fruits as they are easily available.

- A good baker should be able to adjust easily. Cream, butter and other ingredients may vary from country to country recipes should be adjusted accordingly.

## **Basic Bread Fabrication**

Bread fabrication is a complex process. Once started, it cannot be interrupted, as timing is very important for bread making.

There are 12 important stages of baking a bread.

### **Weighing Ingredients**

During this stage, the chef assembles all the required ingredients and weigh them properly to ensure a good quality final product.

### **Preparing Ingredients**

The chef selects an appropriate flour and sieves it. The chef also prepares yeast mixture by adding right amount of water of right temperature into the dry yeast.

### **Mixing the Ingredients**

Mixing the ingredients is not as simple as it sounds. There are various factors that need consideration such as room temperature, flour temperature, speed of machine, the timings of adding various ingredients like margarine, sugar, yeast etc.

### **Bulk Fermentation**

During bulk fermentation, the yeast acts on sugar in the flour and releases carbon dioxide and alcohol while it respire. The gas makes the flour dough rise and the alcohol brings flavor to the bread. The longer the fermentation, the more intense the aroma.

### **Folding/Degassing**

Folding a dough is superior to simply punching it down. Folding involves gently kneading the dough into parts and new rolls. Degassing is a very important piece of the bread jigsaw. It removes some of the carbon dioxide and redistribute the food for yeast so that the yeast can resume to their meal.

Dividing

A large dough is divided into several smaller portions to make loaves or buns.

### **Benching**

At this stage, the dough is kept for a while so that the gluten can rest and shaping becomes easy. This time is not more than a few minutes.

### **Shaping**

At this stage, the baker shapes the bread for various looks such as loaves, buns, begels, baguette, rolls, sticks, and other various shapes. Shaping affects the physical form of the bread.

### **Proofing**

Once the dough is made into a desired shape, the baker keeps it for the final fermentation before it enters the oven. Proofing affects the chemical form of the bread.

### **Baking**

The baker preheats the oven and keeps the doughs into it under a controlled temperature.

### **Cooling**

In this stage, the baker takes out the bread and sets on the racks for exposing it to the air for cooling. Some breads such as baguette are eaten at room temperature.

The bread is thus ready to be consumed.



## **Types of Cakes**

Cakes are named according to the way they are prepared.

### **Type & Preparation**

#### **Butter cakes**

They contain fat such as butter. It starts with beating sugar and butter together until the sugar dissolves partially and then adding dry and wet ingredients alternatively. The resulting cake is light and rich with moisture. **For example**, Pound cake made

with a pound each of butter, sugar, eggs, and flour.

### Layer Cakes

They also contain butter and can be made by arranging layers of different butter cakes. **For example**, Golden cake, Birthday cake.

### Sponge cake

They do not contain fat or leavener such as baking powder. The preparation starts with whipping eggs or egg whites such that it becomes fluffy with air. Dry ingredients are sifted and folded in gently. During baking, the air expands to rise the cake on its own. It gives extremely light and spongy but less moist cake.

### Angel Food Cake

It contains egg whites and no egg yolks. Preparation starts with beating egg whites until they are firm and adding dry ingredients gently. This cake is very white and delicate. It is often paired with addition of fruits. It is cooled by inverting it on the cooking rack.

### Genoise

It is a kind of sponge cake made with whole eggs. In the preparation, eggs and sugar are combined and whipped in the pan kept over simmering water. They are sliced into thin horizontal layers and stacked with alternate layers of cream/frosting and slices to create layered cake. **For example**, Swiss roll.

### Flourless Baked Cake

It does not contain flour. All ingredients are folded gently and poured into a pan that is kept in a larger pan which is partially filled with water. This water bath is arranged to reduce effect of strong heat from oven to this delicate cake. **For example**, cheese cake.

### Flourless Unbaked Cake

They are chilled instead of baking. The bottom is often crusted with a layer of cake and on the top of it whipped cream and egg white is added. **For example**, Chocolate mousse.



SPL. FANCY CAKE R. 500.00

KIT KIT CAKE R. 1075.00

CHOCOLATE TRUFFLE CAKE R. 500.00

PASTRIES R. 150.00

PASTRIES R. 700.00

BUTTER PASTRIES R. 500.00

PASTRIES R. 800.00