RQF LEVEL 3

FOPFP303

FOOD PROCESSING

Fried Pastry Making

TRAINEE'S MANUAL

October 2024

FRIED PASTRY MAKING

2024

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ACRONYMS

AGR: Agriculture

CBC: Competence Based Curriculum

CCP: Critical Control Point

CIP: Cleaning in Place

COP: Cleaning Out of Place

FIFO: First in First Out

FOP: Food Processing

KG: Kilogram

LIFO: Last in Last Out

OC: Degree Celsius

OF: Degree Fahrenheit

PPE: Personal Protective Equipment

RH: relative humidity

RQF: Rwanda Qualification Framework

RTB: Rwanda TVET Board

SOP: Standard Operating Procedure

TQUM Project: TVET Quality Management Project

TVET: Technical and Vocational Education and Training

INTRODUCTION

This trainee's manual includes all the knowledge and skills required in food processing specifically for the module of **"Fried Pastry Making".** Trainees enrolled in this module will engage in practical activities designed to develop and enhance their competencies. The development of this training manual followed the Competency-Based Training and Assessment (CBT/A) approach, offering ample practical opportunities that mirror real-life situations.

The trainee's manual is organized into Learning Outcomes, which is broken down into indicative content that includes both theoretical and practical activities. It provides detailed information on the key competencies required for each learning outcome, along with the objectives to be achieved.

As a trainee, you will start by addressing questions related to the activities, which are designed to foster critical thinking and guide you towards practical applications in the labor market. The manual also provides essential information, including learning hours, required materials, and key tasks to complete throughout the learning process.

All activities included in this training manual are designed to facilitate both individual and group work. After completing the activities, you will conduct a formative assessment, referred to as the end learning outcome assessment. Ensure that you thoroughly review the key readings and the 'Points to Remember' section.

MODULE CODE AND TITLE: FOPFP303 FRIED PASTRY MAKING

Learning Outcome 1: Prepare Workplace
Learning Outcome 2: Make the Dough
Learning Outcome 3: Fry the Dough
Learning Outcome 4: Store fried Pastries

Indicative contents
1.1 Selection of tools and equipment used in fried pastry **1.2 Selection of materials used in fried pastry** **1.3 Organization of working area for making fried pastry** **1.4 Preparation of ingredients**

Key Competencies for Learning Outcome 1: Prepare Workplace

Knowledge	Skills	Attitudes
• Description of tools and equipment used in fried pastry making • Description of selection criteria of tools and equipment used in fried pastry making • Identification of ingredients used in fried pastry making • Description of selection criteria of ingredients used for fried pastry making • Differentiation of cleaning products • Description of cleaning methods used for cleaning fried pastry making workshop • Description of the procedure for doughnut and chapatti processing	• Selecting tools and equipment used in fried pastry making • Adjusting tools and equipment used in fried pastry making • Selecting ingredients for fried pastry making • Cleaning the workplace, tools and equipment • Arranging the workplace for fried pastry making. • Determining the ratio of ingredients used in fried pastry making • Weighing ingredients for fried pastry making	• Being careful while selecting tools and equipment • Having accuracy while weighing ingredient • Being specific when determining ratio of ingredients • Being respectful for instruction of trainer • Being attentive while cleaning workplace

Duration: 10 hrs

Learning outcome 1 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe correctly materials, tools and equipment used in fried pastry making.
2. Select properly materials, tools and equipment used in fried pastry making.
3. Adjust properly tools and equipment used in fried pastry making.
4. Prepare correctly cleaning products for cleaning workplace.
5. Describe properly cleaning methods used for cleaning workplace.
6. Clean effectively workplace for fried pastry making.
7. Arrange properly working area for fried pastry making.
8. Determine correctly ingredients ratio for doughnut and chapatti making.
9. Weigh appropriately ingredients used for making doughnut and chapatti.

Resources

Equipment	Tools	Materials
• Dough mixer • Fryer • Auto flour sifter • Combination dough divider/rounder • Packaging machine	• Spoon • Knives • Plates • Balance • Stainless steel Tables • Wax Paper • Cooling Racks • Long Serrated Knife • Rollers • Cutters • Trays • Sieves • Moppers • Frying pan • Perforated spoon	• Soaps • Sanitizers • Disinfectants • Detergent • Flour • Salts • Sugar • Water • Fat • Oil • Milk • Eggs • Yeast • Baking powder • Onions • Food colour

Indicative content 1.1: Selection of Tools and Equipment Used in Fried Pastries

Duration: 3 hrs.

Theoretical Activity 1.1.1: Description of the tools and equipment used in fried pastry making

Tasks:

1: You are requested to answer the following questions related to the description of tools and equipment used in fried pastry making:

i. How can you differentiate tools and equipment

ii. Suggest the tools and equipment used in fried pastry by respecting the following categories:

a) Mixing, b) Cutting c) measuring

2: Provide the answers to the asked questions by writing them on papers, flip chart.

3: Present the findings/answers to the whole class.

4: For more clarification read the key readings 1.1.1

Key readings 1.1.1: Description of tools and equipment used in fried pastry making

- **Tools and equipment used in fried pastry making**

  A tool is simply defined as mechanical device intended to be used in task and make it easier and does not require complicated knowledge and skills in order to use it.

  Equipment: Most commonly, referrers to a set of tools or other objects commonly used to achieve a particular task.

Examples of Differentiation

Feature	Tools	Equipment
Purpose	Specific tasks	Broader processes
Size	Small, handheld	Large, standalone
Power	Human, battery, compressed air	Electric, pneumatic, hydraulic, internal

		combustion
Durability	Moderate	High
Cost	Low to moderate	Moderate to high
Skill level	Basic	Specialized

- **For mixing**

Name of tools and equipment	**Image of tools and equipment**	**Uses of tools and equipment**
Dough mixer		Equipment used for mixing by beating and stirring ingredient to make a homogenous dough.
Hand mixer		Tool for whipping cream or eggs, mixing cake batter and cookie dough
Whisk/Stirrer		It is used to blend ingredients together quickly or to incorporate air into ingredients such as egg whites or heavy cream in order to increase the volume of the mixture.

- **For Cutting**

Name of tools and equipment	**Image of tools and equipment**	**Uses of tools and equipment**
Pastry blender		It is used to work solid fats like butter, shortening, or lard into flour to create a dough

Cutter	 	Is used to cut dough in small parts/pieces
Knives		It used to cut glazed fruit, nuts, or other ingredients in baking.
Blender		Works by using rapidly rotating blades to cut and break down the big particles of flours, sugar and fresh spices into fine ones.
A grater		It is a tool used for shredding or grating fruit and vegetables into smaller pieces.

- **For Preparing (preparatory)**

Name of tools and equipment	**Image of tools and equipment**	**Uses of tools and equipment**
Flours shifter/Sieves	 	It is used to separate flour particles based on their sizes

Deep Fryer:		Equipment Used to fry the doughnut
Frying pan		Tools Used to fry the doughnut
Pastry cloths/Napkin	 	Its purpose is to minimize sticking, and allow to therefore rolling the dough thinner.
Tray		It is used to hold ingredients in large quantities and the dough from mixing area to cutting table.
Rolling pin		It is a cylindrical food preparation utensil used to shape and flatten dough. Most of time it is made from wood
Scraper		Tool used to pick up, turn, and portion dough.

- **For measuring**

Name of tools and equipment	**Image of tools and equipment**	**Uses of tools and equipment**
Measuring cup		Used to measure the volume of liquids such as milk, water, oil, or solid powders like sugar, flour or washing powder.
Measuring spoon		It is used to measure small quantities of ingredients.

Electronic balance		It is used to weigh small quantity of ingredients
Mechanic balance		It weighs more than 1 kilo of ingredients
Graduated jag		Used to measure the volume of liquids such as milk, water, oil,

- **Cleaning tools**

Name of tools and equipment	**Image of tools and equipment**	**Uses of tools and equipment**
A towel		It is a piece of absorbent cloth or paper used for drying or wiping a surface.
Dustbins		are containers which are used to dump the waste generated at homes and in public places
Buckets		are often used for holding and carrying water
Sponge		Are used for cleaning impervious surfaces, sponges are especially good at absorbing water and water-based solutions.

Squeegee		The function of Squeegee is to remove water from a surface, typically glass or other smooth surfaces, by using a long, narrow, flexible blade or rubber to wipe away the water.
Broom		It is used for sweeping and cleaning floors, although it can also be used for other surfaces such as walls or ceilings.
A mop		It is used to remove dirt, dust, and liquid spills from various surfaces.

Practical Activity 1.1.2: Selection of tools and equipment

Task:

Referring to the previous theoretical activity (1.1.1), you are requested to go to the food processing workshop and select the right tools and equipment to be used in fried pastry making.

1: Apply safety precautions.

2: Select tools and equipment for fried pastry making.

3: Present your work to the whole class.

4: For more clarification read key reading 1.1.2

Key readings 1.1.2.: Selection of tools and equipment

Before selecting tools and equipment, you have to consider the selection criteria and their uses, it means that firstly you have to know their functions and where to be used in a food processing workshop.

In addition, is crucial for differentiating tools and equipment for fried pastry workplace.

- **Selection criteria for tools and equipment**
  - ✓ **Effectiveness and efficiency in performing tasks**: Consider the specific types of pastries you'll be making.

Some tools and equipment are versatile and can be used for a wide range of pastries, while others are designed for specific tasks like rolling, cutting, or shaping.

- ✓ **Quality and durability**: Invest in high-quality tools and equipment that will last over time. Stainless steel, silicone, and heavy-duty plastics are good materials to look for in tools and equipment.
- ✓ **Size and capacity**: Make sure the equipment you choose is appropriately sized for your workshop and the quantity of product you plan to produce.
- ✓ **Ease of use**: Choose tools and equipment that are user-friendly and comfortable to handle. Ergonomically designed tools can make your pastry-making process more efficient and enjoyable.
- ✓ **Maintenance and cleaning**: Consider how easy it is to clean and maintain the equipment. Dishwasher-safe tools can save you time and effort in cleaning up after using.
- ✓ **Cost/Price of equipment or tool**: Determine your budget and prioritize essential items first. It is okay to start with basic equipment, gradually invest in more specialized tools as your skills, and needs evolve.

- **Common Tools in a Fried Pastry Workshop (especially needed)**
  - ✓ **Tools for preparing ingredients:**
    - Mixing bowls**:** For combining ingredients.
    - Measuring cups and spoons: For precise ingredient measurement.
    - Sieves and strainers: For sifting flour and other dry ingredients.
    - Rolling pins: For rolling out dough.
    - Pastry cutters: For cutting dough into desired shapes.
    - Cutlery: Knives, forks, and spoons for handling ingredients.
  - ✓ **Cooking Equipment:**
    - Deep fryers: For cooking pastries in hot oil.

    Other tools for cooking
    - Skimmers and tongs: For removing pastries from hot oil.
    - Paper towels: For draining excess oil.
    - Cooling racks: For cooling pastries.
    - Baking sheets: For placing pastries before frying.
  - ✓ **Presentation Tools:**
    - Pastry bags and nozzles**:** For decorating pastries with fillings or toppings.
    - Spatulas and icing smoothers: For spreading fillings and glazes.
    - Dusting sieves: For applying powdered sugar.
  - ✓ **Cleaning and Sanitation Tools:**
    - Sponges, brushes, and cloths: For cleaning surfaces and equipment.
    - Materials: Detergents and sanitizers: For cleaning and sanitizing.

Practical Activity 1.1.3: Adjustment of tools and equipment

Task:

Referring to the previous theoretical activity (1.1.1), you are requested to go to the food processing workshop and adjust tools and equipment to be used in fried pastry making.

1: Apply safety precautions.

2: Adjust tools and equipment for fried pastry making.

3: Present your work to the trainer and whole class.

4: For more clarification read key reading 1.1.3

5: Perform the task provided in application of learning 1.1

Key readings 1.1.3: Adjustment of tools and equipment

- **Functionality and adjustment**
  - **Adjustment of equipment** refers to the process of fine-tuning various types of machinery, devices, or instruments to ensure they operate correctly and produce accurate results. It could be to improve accuracy, restore functionality, or align with specific standards or requirements.
  - **Calibration** involves comparing the equipment's measurements or output to a known standard. Adjust the equipment's settings or components to ensure that its readings align with the standard.
- **Purpose of adjusting the equipment.**
  - Help to checks and verifies the accuracy of tools and equipment.
  - Adjustment also creates traceability of tools and equipment to ensure they are consistent
- **Equipment adjustment procedures**

  Follow instruction of the machine manufacturer, each equipment has an instruction for use, before uses check their instructions and respect their adjustment order.
- **Effectiveness of the equipment**

Capacity: for each machine the operator should take into account the capacity of this; everyone is recommended to not over load the machine while it is working.

Equipment types: the type of equipment is one key to consider when you are using the equipment, we are recommended to use the equipment for their intended use.

- **Adjustment parameters of tools and equipment**
  - **Adjustment parameters of deep fryer**
    - **Primary Adjustment Parameters**
      - Temperature
      - Time
    - **Secondary Adjustment Parameters (Less Common)**
      - Oil level:
      - Filter settings
      - Ventilation
  - **Adjustment parameter of dough mixer**
    - **Primary Adjustment Parameters**
      - Speed
      - Time
    - **Secondary Adjustment Parameters**
      - Temperature
      - Bowl inclination
      - Paddle type: Different paddle designs (hook, spiral, etc.)
  - **Adjustment parameter of electronic balance**

Adjustment parameters for an electronic balance involve fine-tuning the balance to ensure accurate and reliable measurements.

Calibration

- **External Calibration**: Use a certified calibration weight to adjust the balance. The weight should match the capacity and precision of the balance.

- **Internal Calibration**:

  Some balances have built-in calibration mechanisms that automatically adjust using an internal reference weight.

Sensitivity Adjustment

- Adjust the sensitivity to account for environmental factors (vibrations, airflow, temperature).
- Use the balance's settings menu to modify the sensitivity level if available.

Zero Point Adjustment (Taring)

- Ensure the balance reads exactly "0.000" when no weight is applied.
- Use the "Tare" or "Zero" button to reset the display.

Linearity Adjustment

- Check and adjust the balance's ability to provide accurate readings across its entire range.
- This may require multiple weights spanning the balance’s capacity.

Repeatability Adjustment

- Test and correct for consistent weight readings under repeated measurements.
- If repeatability is inconsistent, recalibrate the balance and check environmental stability.

- **Adjustment procedure of some equipment**

1. Place the balance on a stable, level surface.
2. Ensure the balance is properly powered and warmed up.
3. Calibrate using certified weights as per the manufacturer's guidelines.
4. Adjust environmental settings based on the surrounding conditions.
5. Verify the balance's performance by measuring known weights.

a. Fryer

Adjusting a fryer involves making changes to various settings and components to ensure optimal cooking performance. Here is a comprehensive guide on how to adjust a fryer:

1. **Temperature Adjustment:**

The temperature of the fryer plays a crucial role in achieving perfectly fried pastry. To adjust the temperature, follow these steps:

- **Refer to the user manual:** Different fryers have varying temperature adjustment methods, so it's essential to consult the user manual specific to your fryer model.
- **Turn off the fryer**: Before making any adjustments, ensure that the fryer is turned off and unplugged for safety.
- **Set the desired temperature:** Rotate the temperature control knob to the desired temperature setting.
- **Allow time for stabilization:** After adjusting the temperature, give the fryer some time to stabilize and reach the set temperature before using it.

2**. Oil Level Adjustment:**

Maintaining the correct oil level is crucial for efficient frying and preventing potential hazards. Follow these steps to adjust the oil level:

- **Check the user manual:** The process of adjusting oil levels may vary depending on the fryer model, so consult the user manual for specific instructions.
- **Drain or add oil as needed**: If you need to decrease the oil level, use a suitable container or drain valve to remove excess oil. Conversely, if you need to increase the oil level, pour in additional oil while ensuring not to exceed the maximum fill line indicated by the manufacturer.

3. **Timer Adjustment:**

Many fryers come equipped with timers that allow precise control over cooking durations. To adjust the timer, follow these steps:

- **Consult the user manual:** Each fryer model may have a different method for adjusting the timer, so refer to the user manual for specific instructions.
- **Set the desired cooking time**: Rotate or press the timer control to set the desired cooking duration. Some fryers use a mechanical dial, while others have digital displays.
- **Start and monitor the timer:** Once the timer is set, start it and closely monitor the cooking process.

C. Dough mixer

Adjusting a dough mixer involves making changes to the mixer's settings to achieve the desired consistency and texture of the dough.

Here is a step-by-step guide on how to adjust a dough mixer:

- **Read the manufacturer's instructions:** Before attempting to adjust a dough mixer, it is crucial to familiarize yourself with the specific model's user manual.
- **Inspect the mixer:** Before making any adjustments, visually inspect the dough mixer for any signs of damage or wear. Check that all components are in good condition and functioning correctly.
- **Choose the appropriate mixing attachment:** Dough mixers typically come with various mixing attachments, such as dough hooks, flat beaters, or wire whisks. Select the attachment that is suitable for the type of dough you are working with.
- **Adjust the speed settings:** Most dough mixers have multiple speed settings that can be adjusted according to the desired outcome. Start by setting the mixer to a low speed and gradually increase it as needed.

- **Functionality of Mixing machine**

The functionality of equipment refers to its ability to perform the tasks or operations it was designed for effectively and efficiently. It encompasses various aspects such as reliability, performance, ease of use, durability, and compatibility with other systems or components.

Points to Remember

- While differentiating tools and equipment, the following features should be considered: size, power, durability, cost, skill level.
- Don’t forget that the main categories of tools used in fried pastry making include: Measuring tools, cutting tools, Mixing tools, Preparatory tools, and Cleaning tools
- During Selection of tools and equipment for fried pastry making, it is important to consider the selection criteria including Quality, durability, Size, capacity, and Cost.
- Tools and equipment used in Fried pastry should be kept in good condition
- The adjustment of tools and equipment used in fried pastry should be done carefully through minimizing the errors.
- While adjusting tools and equipment used in fried pastry you need to follow the manufacturer’s instructions for better results.

Application of learning 1.1.

You are requested to visit the pastry making company located around your school and select and adjust tools and equipment used for fried pastry and prepare study visit report.

Indicative content 1.2: Selection of Materials Used in Fried Pastry Making.

Duration: 3 hrs

Theoretical Activity 1.2.1: Description of ingredients used in fried pastry making

Tasks:

1: You are requested to answer the following questions related to the description of ingredients used in fried pastry making:

i. Talk about term ingredient in fried pastry making.
ii. What do you think are the ingredients used in fried pastries making?

2: Provide the answers to asked questions by writing them on papers, flip chart, Blackboard or white board.

3: Present the findings/answers to the whole class.

4: For more clarification, read the key readings 1.2.1

Key readings 1.2.1.: Description of ingredients used in fried pastry making

- In fried pastry making, an **ingredient** refers to any materials or substance or component used in the preparation of the pastry dough. Each ingredient play specific roles in determining the taste, texture, appearance and structure of the fried pastry.
- **List and Usage of ingredient**

  The ingredients used in making Fried Pastry: Wheat flour, Water, Yeast, Salt, Sugar, Milk, Egg, Oil/Fat, Baking powder.

  ✓ **Wheat flour**

  It is the only flour that contains **enough gluten-forming proteins** to *provide the structure* essential to baked and fried goods. (For more about gluten in flour, and gluten development), Flours made from other grains such as rye, rice, corn, millet, barley, oats, and spelt add distinctive flavors and textures to baked goods.

  - **All-purpose flour is** the most commonly used type of wheat flour in fried pastry making. It is made from a blend of hard and soft wheat varieties and has a moderate protein content ranging from 10-12%.
  - **Hard wheat flour** on the other hand, has a higher protein content (around 12-14%) compared to all-purpose flour. The increased protein content results in stronger gluten formation, providing more structure and chewiness to the dough.

- **Cake flour** is another type of wheat flour used in fried pastry making but less commonly than all-purpose or bread flour. It has a lower protein content (around 6-8%) and is finely milled to create a lighter texture in baked goods.

- **Whole wheat flour** is hard wheat flour milled from the entire wheat kernel, including the bran and germ; because the germ is high in lipids (fats), whole wheat flour can quickly become rancid.

Functions of flour

- It acts as the binding agent and an absorbing agent
- It is important for the flavor of product
- It adds the nutritional value to the product
- It builds the structure and bulky to the product
- It holds the other ingredients together and they are distributed evenly into the dough or mixture
- It is the backbone of the bakery products

✓ **Shortening agents**

- 100% of fat & solid at room temperature
- It can be used to give foods a crumbly and crisp texture such as pastry. Examples of fat used as "shorteners" include butter, margarine, vegetable oils and lard.
- It also helps in gluten standing & tenderize product.

Functions of fats:

- Fat provides nutrition
- It makes the product tender & palatable
- It helps to retain air during creaming operation; it increases volume to the product
- It gives softness to the product
- It improves the taste and shelf life of the products
- It gives good flavor and color
- It increases eating quality of the product

✓ **Sugar**

Functions of sugar:

- They add sweetness and flavor.
- They create tenderness and fineness of texture
- They give crust (shell) color.
- They increase keeping qualities by retaining moisture.
- They act as creaming agents with fats
- They provide food for yeast

Powdered sugar **Granulated sugar**

- ✓ **Leavening / raising agents**

  Leavening is the production or incorporation of gases in a fried product to increase volume and to produce shape and texture.

- ✓ **Yeast:**

  It is a living micro-organism and is a form of plant life. It requires for its growth food, moisture, warmth and air. The primary function of yeast is to change sugar into carbon dioxide gas, so that the dough, in which it is generated, is aerated.

- **Baking powder:** Dull white in appearance and is a smooth powder. It is a mixture of bicarbonate of soda and an acid and a starch.
- **Soda bi-carbonate** (sodium bicarbonate). **:** It is bright white in appearance and lesser smooth compared to baking powder

Function of leavening agents

- It increases the volume of the products
- It improves the product by making it tender & lighter
- It improves crumb color, softness of texture, taste & smell.
- It improves digestion quality

- ✓ **Milk products**

  Fresh whole milk, Skimmed milk, Pasteurized milk, Homogenized milk are used

  Functions of milk:

  - It gives nutritional value to the product
  - Improves gas retention power of the dough
  - Lactose helps to give crust color to the product
  - Gives flavor and taste to the product
  - It keeps product tender
  - Butterfat present in milk keeps the product moist for longer time and improves shelf life.

- ✓ **Water**

  Function of water

  - ✓ It gives moisture to the products
  - ✓ It combines all the dry ingredients together
  - ✓ It helps to distribute the raw materials equally in the batter
  - ✓ It controls the batter and dough temperature

- ✓ It controls the consistency of the dough and batter
- ✓ It helps to develop the gluten it helps to release carbon dioxide gas

✓ **Eggs**

Functions of eggs

- ✓ Moisten
- ✓ Aerate (whole egg or egg white is beaten it entraps air which aids in the aerating process).
- ✓ Bind. Eggs help to form the structure of a cake because of their protein content which coagulates when heated, and the lecithin' in egg yolk acts as an emulsifier of the fat in the batter.

✓ **Salt**

The chemical name of salt is sodium chloride. It is composed of 40% of sodium & 60% chloride

Functions of salt:

- ✓ It helps to control the yeast activity in bakery products
- ✓ It enhances the flavour of the products
- ✓ The crust color of the product is improved
- ✓ Salt has a tightening action on flour proteins
- ✓ It controls the production of unwanted acids in the dough

✓ **Flavors**

Every ingredient used contributes and imparts its own flavors to the overall flavor of the products

✓ **Food Colors**

The use of color is important as the use of flavor

Function:

- To supplement deficiencies in color, e.g. yellow color is used to conceal the lack of butter and eggs in dough.
- To increase the eye appeal and to complement a definite flavor.
- To introduce varieties and interest to decorated products.

Practical Activity 1.2.2: Selection of materials used in fried pastry

Task:

Referring to the previous theoretical activity, you are requested to go to the food processing workshop and select materials to be used in fried pastry making.

1: Apply safety precautions.

2: Select materials for fried pastry making.

3: Present your work to the trainer and whole class.

4: For more clarification read key reading 1.2.2

Key readings 1.2.2: Selection of materials used in fried pastry

- **Selection criteria for ingredient used in fried pastry making**

  The selection of ingredients for fried pastry making is crucial to ensure the quality, taste, and texture of the final product. Here are some general selection criteria for ingredients in fried pastry making:

  - Quality of Ingredients
  - Type of product
  - Consumer preference
  - State of matter (solid, gas and liquid)
  - Level of contamination
  - Safety of product
  - Cost of ingredient
  - Availability of ingredient

- **Selection criteria for cleaning product**

  The selection criteria for cleaning products used in fried pastry making include:

  - Effectiveness: The cleaning product should be effective at removing dirt, grease, and bacteria from surfaces.
  - Safety: The cleaning product should be safe to use on the surfaces that are being cleaned and should not contain any harmful contaminants.
  - Food safety: The cleaning product should be food-safe and should not leave any residue on surfaces that could contaminate food.
  - Ease of use: The cleaning product should be easy to use and should not require any special training or equipment.
  - Cost: The cleaning product should be affordable and cost-effective.
  - Good quality & reputed products should be used that are available at all times.

- Toxicity should be low for minimum impact on staff, guests and the environment
- Types of soil

When selecting materials for making fried pastries, there are several selection criteria for ingredient and cleaning materials to consider in order to achieve the desired texture, taste, and overall quality and safety of the final product.

- **Type of cleaning products used in cleaning fried pastry workplace.**
  - **Water:** it is the simplest cleaning agent and some form of dirt will be dissolved by it, but normally it is a poor cleaning agent if used in conjunction with some other agent. It removes clutter, dust, crumbs, and other detritus.
  - **Sanitizer:** Reduce germs and decrease the opportunity for microbes to gather by providing antibacterial solutions. Sanitizing means that you are lowering the number of germs to a safe level. could be done by either cleaning, disinfecting, or both eg: **(chlorine)**
  - **Disinfectant:** Destroy germs on contact by eradicating them where they live and inhibiting their spread at the source, some common disinfectants are bleach and alcohol solutions. Eg: bleach water and ethanol, hydrogen peroxide.
  - **Detergent:** are those cleaning agents, which are used to remove food debris, grease and dirt they cannot kill bacteria or microorganism. They contain significant quantities of a group of chemicals known as Surfactants (chemical that have water and soil attracting properties) sodium hydroxide, sodium bicarbonate, hydrochloric acid, nitric acid

Theoretical Activity 1.2.3: Explanation of usage of cleaning product used in

Tasks:

1: You are requested to answer the following questions related to the description of cleaning products used in fried pastry making:

i. What are the hazard and safety precaution of cleaning products?
ii. Discuss about direction of use of cleaning products

2: Provide the answers to asked questions by writing them on papers, flip chart, Blackboard or white board.

3: Present the findings/answers to the whole class.

4: For more clarification, read the key readings 1.2.3

5: Perform the task provided in application of learning 1.2.

Key readings 1.2.3.: Explanation of usage of cleaning product used in fried pastry making

- **Hazard and safety precaution of cleaning products while in use**
  - Read product and equipment labels and usage instructions before starting to clean
  - Wear recommend PPE
  - Worker must know which cleaning chemicals must be diluted and how correctly dilution is,
  - Chemicals in some cleaning products can be irritating to the skin or can cause rashes.
  - Cleaning products that contain corrosive chemicals can cause severe burns if splashed on the skin or in the eyes.
  - Vapours and/or gases from cleaning chemicals can irritate the eyes, nose, throat and lungs.
  - Burning eyes, painful throat, coughing, trouble breathing and breathless.
  - Chemicals in some cleaning products can cause asthma or trigger asthma attacks.
  - Some cleaning products contain hazardous chemicals that can enter the body through skin contact or from breathing gases into the lungs.
  - Thoroughly reviewing and training workers on the use, storage for cleaning chemicals
  - Handling in a sanitary manner in order to protect its shelf-life
  - Providing workers with a place to wash up after using cleaning chemicals
  - Operating ventilation systems as needed to allow sufficient air flow and to prevent buildup of hazardous
  - Warning workers not to mix cleaning products that contain bleach and ammonium
- **Direction of use of cleaning products**

When using cleaning products, it is important to follow the directions provided on the product label. These directions are designed to ensure safe and effective use of the cleaning product. Here are some general guidelines to keep in mind when using cleaning products:

- **Read the label:** Before using any cleaning product, carefully read the label for instructions and warnings. The label provides important information about how to use the product correctly and safely. It will also indicate any precautions or safety measures that need to be taken.
- **Dilution instructions:** Many cleaning products, such as concentrated cleaners or disinfectants, require dilution with water before use. Follow the instructions on the label to determine the correct ratio of product to water for effective cleaning. Using too much or too little of the product can affect its performance.

- **Ventilation:** When using cleaning products, ensure that there is proper ventilation in the area where you are working. Open windows or doors to allow fresh air to circulate and prevent the build up of fumes.
- **Follow contact time instructions:** Some cleaning products require a certain amount of contact time with the surface being cleaned in order to be effective. Follow the instructions on the label to ensure proper contact time.
- **Storage and disposal:** After using a cleaning product, make sure to store it properly according to the instructions on the label. Keep it out of reach of children and pets, and away from heat or open flames. If the product needs to be disposed of, follow local regulations for proper disposal methods.

Points to Remember

- Be aware that the main ingredients needed for fried pastry making include wheat flour, water and/or milk, sugar, shortenings and leavening/raising agents.
- Ingredients used for fried pastry should not be expired, have good appearance, stored properly, sealed tight and contained in its container or not damaged.
- You have to select ingredients and cleaning products separately to avoid the contamination of the ingredients by cleaning products.
- Remember that the main ingredients needed for fried pastry making include wheat flour, water and/or milk, sugar, shortenings and leavening/raising agents.
- The main cleaning products used in fried pastry making are detergent, sanitizer, water and disinfectant
- Cleaning products can be hazardous if not used properly; before using them, the user should wear recommended PPE, read on the product and equipment labels, revise the usage instructions before starting to clean and do the corrected dilution.

Application of learning 1.2.

You are requested to visit company makes fried pastry products located around your school to select materials (ingredients, cleaning products) for fried pastry making and prepare study visit report.

Indicative content 1.3: Organization of Working Area for Making Fried Pastry.

Duration: 3 hrs

Theoretical Activity 1.3.1: Description of cleaning methods used in cleaning the fried pastry workplace.

Tasks:

1: You are requested to answer the following questions related to the description of cleaning methods used in cleaning the fried pastry workplace.

I. How can you understand those cleaning methods in fried pastry workplace?
   a) Wet cleaning
   b) dry cleaning

II. What do you think is the hygienic precaution to avoid contamination in fried pastry workplace?

2: Discuss on the given topics and write their finding on papers, flip chart or blackboard.

3: Present their findings to the whole class.

4: For more clarification read the key reading 1.3.1

Key readings 1.3.1: Description of cleaning methods used in cleaning the fried pastry workplace.

- **Cleaning methods**

✓ **Dry cleaning**

A cleaning process to remove soil to a safe, acceptable and functional level with little or no water application.

Advantages: In addition to reducing moisture in a plant, dry cleaning can reduce the cleaning and sanitation downtime of a plant.

✓ **Wet cleaning**

A cleaning method that employs the use of water systems for removing soil or residues.

Wet cleaning will utilize a series of rinses (pre-detergent rinse and post detergent rinse).

- **Hygienic precautions to avoid contamination**

Maintaining hygienic precautions when using cleaning products is essential to prevent contamination and ensure a safe and healthy environment. Here are some key guidelines for using cleaning products while minimizing the risk of contamination:

✓ **Read Product Labels:** Always read the labels and instructions on cleaning

products before use. Different products have specific recommendations for use, and understanding these guidelines is crucial.

- ✓ **Wear Personal Protective Equipment (PPE):** Use appropriate PPE, such as gloves and safety goggles, to protect your skin and eyes from contact with cleaning chemicals. If a product requires respiratory protection, wear a mask or respirator as indicated on the label.
- ✓ **Store Products Properly:** Store cleaning products in their original containers, and keep them tightly sealed when not in use. Store chemicals in a cool, dry place, away from direct sunlight, extreme temperatures, and incompatible materials.
- ✓ **Avoid Mixing Chemicals:** Never mix different cleaning products unless the label explicitly states that it is safe to do so. Mixing chemicals can create toxic fumes or reactions that are harmful to health. Be particularly cautious with products containing bleach or ammonia, as mixing them can produce dangerous gases.
- ✓ **Use Appropriate Dilution Ratios:** Follow the recommended dilution ratios for concentrated cleaning products. Using too much or too little can affect the product's effectiveness and safety.
- ✓ **Proper Ventilation:** Ensure adequate ventilation when using cleaning products. Open windows and doors, and use exhaust fans to disperse fumes and improve air circulation.
- ✓ **Wash Hands and Equipment:** Wash your hands thoroughly after using cleaning products, especially before handling food or touching your face.
- ✓ **Dispose of Waste Properly:** Follow local regulations for the disposal of cleaning product containers and waste. Some products may be considered hazardous waste and require special disposal methods.
- ✓ **Check Expiry Dates:** Be aware of the expiration dates on cleaning products. Using expired products may affect their effectiveness and safety.
- ✓ **Educate and Train:** Ensure that individuals using cleaning products are properly trained on their safe and effective use. This is especially important in commercial or institutional settings.

Practical Activity 1.3.2: Cleaning and arranging fried pastry workplace

Task:

Referring to the practical activity 1.3.2, you are requested to go in food processing workshop and perform cleaning and arranging fried pastry workplace.

1: Apply safety precautions.

2: Perform cleaning and arranging fried pastry workshop.

3: Present your findings to the whole class.

4: For more clarification read the key reading 1.3.2

5: Perform the task provided in application of learning 1.3

Key readings 1.3.2.: Cleaning and arranging fried pastry workplace

- **Preparation of cleaning product**

  - ✓ Dilution refers to weakening a concentrated cleaning product by mixing it with water.
  - ✓ This is important for several reasons:
    - **Safety:** Concentrated cleaners can be harsh on skin, eyes, and fumes can be irritating. Dilution reduces these risks.
    - **Effectiveness:** Using the right concentration is crucial for a cleaning product to work effectively. Too strong can damage surfaces, too weak might not clean well.
    - **Cost-effectiveness:** By diluting, you get more cleaning solution out of your product.

- **Reading the Label:**

  - ✓ The dilution ratio will be on the product label. It's typically expressed as a ratio like 1:10 or 1:32.
    - The first number represents the parts of cleaning product.
    - The second number represents the parts of water.
  - ✓ For example, 1:10 means 1 part cleaner to 10 parts water.
  - ✓ By percentage, The products are diluted according to the instructions of cleaning products types and soil to removes but the concentrations varies between 1% to 5 %

- **Dilution Process:**

  1. **Gather your supplies:** You'll need a measuring cup for the water, a container for the diluted solution (spray bottle, bucket etc.), and safety gear like gloves (if recommended).

2. **Measure the water:** Use the measuring cup to add the required amount of water based on the dilution ratio and the amount of cleaning solution you need.
3. **Add the cleaning product:** Slowly pour the measured amount of cleaning product into the water. Never add water to the concentrated product, as this can cause hazardous fumes.
4. **Mix gently:** Stir or gently swirl the mixture to ensure everything is evenly combined.
5. **Label the diluted solution:** Especially for homemade solutions, label the diluted product with the ingredients and dilution ratio for safety and future reference.

- **Cleaning procedures**

1. pre-Clean

The first stage of cleaning is to remove loose debris and substances from the contaminated surface you're cleaning. You can do this by wiping with a disposable towel, sweeping, or rinsing. The aim is to remove as much loose debris as possible to prepare the area for the next stage of cleaning.

2. Main Clean

The second stage of cleaning is to loosen any substances, dirt, grease, and debris that you were unable to remove during the pre-clean stage. This involves using hot water and a detergent.

3. Rinse

The third stage of cleaning is to remove all the loosened substances, dirt, and debris as well as the detergent that was present in the second stage. You can do so using clean, hot water with a cloth, mop, squeegee, etc.

4. Disinfection

The fourth stage of cleaning is to disinfect the surface, which will destroy bacteria and other microorganisms. For example, by using heat or a chemical disinfectant for an adequate contact time. Follow the instructions for any products or equipment you use.

5. Final Rinse

The fifth stage of cleaning is to remove any disinfectants from the previous stage using clean, hot water.

6. Drying

The sixth and final stage of cleaning is to dry the surface, and it's recommended that you air dry where possible. You can use drying cloths if needed.

- **Layout of fried pastries**

When arranging a workplace for fried pastries, there are several factors to consider in order to ensure efficiency, cleanliness, and safety. The layout and organization of the workspace can greatly impact productivity and the overall quality of the pastries being produced.

Food processing facilities have unique layout needs compared to regular factories, food processing plant layouts prioritize certain aspects:

✓ **Key Considerations:**

- **Food Safety:** This is paramount. The layout should minimize contamination risks by separating high-risk from low-risk areas, controlling traffic flow, and promoting easy cleaning.
- **Production Efficiency:** Similar to other production, optimizing workflow is crucial. This means arranging equipment in the order of processing steps and minimizing product backtracking.
- **Cleanability:** Easy and thorough cleaning is essential to prevent bacterial growth. This means using smooth, non-porous surfaces and designing for easy access to all areas.
- **Versatility:** Some food processing plants may handle a variety of products or seasonal changes. The layout should be flexible to accommodate these variations.

The ideal layout for a fried pastry workplace depends on the size of the operation, variety of pastries offered, and production volume. However, some general principles apply to optimize workflow and efficiency:

✓ **Key Areas:**

- **Dry Ingredient Storage:** A cool, dry area to store flour, sugar, spices, and other dry ingredients in sealed containers.
- **Mixing Area:** Equipped with mixers, prep counters, and scales for preparing dough.
- **Forming Station:** Space for shaping and cutting the pastry dough. Benches with rolling pins, dough cutters, and molds might be present.
- **Frying Area:** This is a crucial zone with safety prioritized. It should have deep fryers with ventilation hoods, fire extinguishers, and heat-resistant surfaces.
- **Cooling Area:** Racks or cooling plates for placing the fried pastries after cooking.
- **Filling and Finishing Station:** A designated area for adding fillings, glazes, or toppings, depending on the pastries made.
- **Packaging Area:** Workstations for hygienically packaging the finished pastries for sale or storage.
- **Cleaning and Storage Area:** A separate area with sinks, cleaning supplies, and storage for equipment not in use.

✓ **Arrangement of Tools and Equipment**

- **Line arrangement**: equipment and materials are on the straight line
- **Round arrangement**: equipment and materials are arranged in the circular arrangement

- **Square arrangement**: The are arranged according to the square

Points to Remember

- Selection of cleaning method is done according to type of dirt or waste to be removed from materials, tools and equipment.
- Avoid contamination while using cleaning products by reading the instruction of use, wear PPE and store products properly.
- Make sure that cleaning products are prepared correctly before cleaning workplace.
- Remember that after cleaning workplace, you have to wait for drying because it can cause accident or other problems.
- Arrangement of the workplace depends on the processing flow chart of fried pastry, tools and equipment should be arranged separately according to their uses in order to hinder contamination/ losses.

Application of learning 1.3.

You are requested to go in your food processing workshop to clean and arrange the workplace.

Indicative content 1.4: Preparation of Ingredients

Duration: 1 hr

Theoretical Activity 1.4.1: Calculation of ingredients ratio

Tasks:

1: you are requested to answer the following question below related to calculation of ingredient ratio:

i What do you understand by the term "**ingredients ratio"?**

ii What do you know about the ratio of ingredients used for doughnut and chapatti?

2: Provide the answer of asked questions by writing them on papers.

3: Present their findings to the classmates and trainer.

4: For more clarification read the key readings 1.4.1.

Key readings 1.4.1.: Calculation of ingredients ratio

- The term **ingredient ratio** in fried pastry making refers to the proportional relationship between different ingredients used in the recipe. This ratio determines the texture, flavour and overall quality of the pastry.
- **Application of ratio of ingredient used in doughnut and chapatti making**
  While making doughnut and chapatti **ingredients used** are flour, fat, eggs, baking powder, ammonium bicarbonate, sodium bicarbonate, milk, water, flavours and colouring and are used **according to the type** of product, company and customers. Thus ratios are changing accordingly.
- **Ratio of ingredient used in doughnut making**
  The exact ratio of ingredients used in doughnut making can vary based on the type of doughnut you want to create and the specific recipe you follow. However, I can provide a general guideline for a basic yeast-raised doughnut recipe in terms of approximate ingredient percentages:
  - ✓ Flour: Approximately 100% (the primary dry ingredient):
  - ✓ Liquid (Milk and Water): Around 50-60%:
  - ✓ Sugar: About 10-15%:
  - ✓ Fat (Butter or Shortening): Around 5-10%:
  - ✓ Eggs: Approximately 5-10%:
  - ✓ Yeast: About 1-2%:
  - ✓ Salt: About 1-2%:

  These are approximate percentages, and the specific ratios may vary from one recipe to another.

It's essential to follow a trusted doughnut recipe for precise measurements.

- **Ratio of ingredient used in chapatti making**

  The ingredients used in chapatti (roti) making typically consist of flour (usually whole wheat flour) and water, with the option of adding salt. The percentages of these ingredients can vary based on personal preferences and regional variations. However, I can provide a general guideline for a basic chapatti recipe:

  1. Whole Wheat Flour: Whole wheat flour is the primary ingredient in chapatti. It typically makes up around 100% of the dry ingredients.
  2. Water: Water is added to the flour to create a dough. The amount of water can vary, but it's usually around 60-65% of the weight of the flour. The hydration level depends on factors like the type of flour and humidity.
  3. Salt (optional): Salt is added to enhance the flavor of the chapatti. The amount of salt used is usually a small percentage of the weight of flour, typically around 1-2%.

  Calculation of quantity of ingredient used in doughnut and chapatti making

- **Calculation and weighing of ingredient quantity used in doughnut and chapatti making**.

  When it comes to making doughnuts, precise measurements of ingredients are crucial to achieve the desired texture, flavour, and consistency. The weighing of ingredients ensures accuracy and consistency in the doughnut-making process.

  The ingredients are weighed/calculated according to the ration. Scales or other weighing instruments are used. Make sure that scales are adjusted before use.

  To calculate the quantity of ingredients needed for your doughnut recipe will depend on the quantity of wheat flour used.

  Example: If you have a recipe

  - ✓ Flour: 20Kg
  - ✓ Water: 50%:
  - ✓ Sugar: About 12%:
  - ✓ Fat: 5%:
  - ✓ Eggs: 5%:
  - ✓ Yeast: 2%:
  - ✓ Salt: 2%

  Calculation

  Formula:

$$\text{Quantity of ingredient} = \frac{\text{The quantity of wheat flour} * \text{Percentage of ingredient}}{100}$$

By using the above recipe, the quantity of fat will be equal

$$\boldsymbol{Quantity\ of\ Fat} = \frac{\mathbf{20Kg} * \mathbf{5}}{\mathbf{100}} \mathbf{= 1\ Kg}$$

Practical Activity 1.4.2: Weighing of ingredient used in fried pastry

Task:

You are requested to go to the food processing workshop and perform weighing of ingredient for fried pastry making.

1: Apply safety precaution (wear PPE)

2: Perform weighing of ingredient for fried pastry making

3: Present the findings to the whole class.

4: For more clarification read key reading 1.4.2

5: Perform the task provided in application of learning 1.4

Key readings 1.4.2.: Weighing of ingredient used in fried pastry

Weighing ingredients is highly recommended for doughnut and chapatti making It ensures consistent results (accuracy), improved texture, fewer errors and avoids the pitfalls of using measuring cups, which can be inaccurate.

Procedures of Weigh Doughnut Ingredients:

1. **Gather your tools:** You'll need a measuring scale and separate bowls for dry and wet ingredients.
2. **Set the scale to grams:** Most doughnut recipes are written in grams for accuracy. If your scale has ounces, consult a conversion chart or online resource to convert the recipe to grams.
3. **Weigh dry ingredients first:** Place your mixing bowl on the scale and tare it (zero it out). Add your flour, baking powder, salt, and any other dry ingredients according to the recipe, one by one.
4. **Weigh wet ingredients:** Tare the scale again and add your milk, eggs, melted butter, etc., following the recipe's weight specifications.

Points to Remember

- Know that ratio of ingredients vary according to the customer needs, processor prefe rences, availability of ingredients, then while preparing recipes know that each ingre dients have their functions in products.
- Always use the adjusted and calibrated scales in order to ensure accuracy and high quality of products.
- It is better to weigh dry ingredient before wet ingredients.

Application of learning 1.4.

You are requested to visit in company makes pastry products located around your school and weigh ingredients used for doughnut and chapatti making then prepare study visit report.

Learning outcome 1 end assessment

Theoretical assessment

1. In the following list, they are the selection criteria of tools and equipment used in fried pastry making. As qualified worker in fried pastry making, encircle right selection criteria of tools and equipment.
   - Size of Equipment
   - Size reduction
   - Performance rate
   - Concentration of tools
   - Chemical reaction
   - Types of products
   - Fattening the dough
   - Durability

2. Complete the following table in the empty space, the first column contain ingredient used in fried pastry making and their respectively second column contain their function.

Column A	**Column B**
1. ……	**A.** it have gluten forming proteins and provide the structure essential to baked and fried goods.
2. …….	**b.** It combines all the dry ingredients together
3 salt	**C.** ……..
4. fat	**d.** It helps to control the yeast activity in bakery products

3. Answer by **true** if statement is correct or **false** if the statement is incorrect.
   - i Sanitizer reduces germs and decrease the opportunity for microbes to gather by providing antibacterial solutions.
   - ii Disinfectant destroy germs on contact by eradicating them where they live and inhibiting their spread at the source
   - iii Detergent is the simplest cleaning agent and some form of dirt will be dissolved by it, but normally it is a poor cleaning agent if used in conjunction with some other agent.

4. Encircle the right answer for the following questions.

A. Select the appropriate cleaning procedures
   i First clean
   ii Main rinse
   iii Drying
   iv Detergent

B. Ingredient add sweetness, flavour and give the crust colour.
   i Yeast
   ii Sugar
   iii Fat
   iv Baking powder

C. Select a tool used as a preparatory tool in chapatti-making
   i Knives
   ii Measuring cylinder
   iii Napkin
   iv Rolling pin
   v Hand mixer

D. Select the right purpose for adjusting equipment
   i Help to check and verify the accuracy of tools and equipment.
   ii It improves digestion quality
   iii Improves gas retention power of the dough
   iv It helps equipment to be shining
   v It helps to weigh/prepare equipment over the recommended weight.

5. The bakery uses the following ratio to make doughnuts:

Wheat flour: 100%,

Sugar: 12%,

Fat: 6%,

Yeast: 1%,

Baking powder: 0.8%,

Salt: 0.7%

Water: 50%.

Determine the amount of fat and baking powder you should use when you have 50 kg of wheat flour in the bakery storeroom.

Practical assessment

Amarembo bakery Ltd located in Kamonyi district produces different pastry products including doughnuts and Chapattis. Yesterday morning labours didn't clean and organize the

workplace then affect the finished products by physical contamination, in this morning Production manager fired them. By using skills, knowledge and attitude in cleaning and organizing the working area of fried pastries, You are requested to perform a similar task that company workers failed to perform. All materials, tools and equipment are availed in Amarembo bakery.

TASK:

- Select and prepare cleaning products before cleaning the workplace.
- Clean workplace
- Arrange workplace

END

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Indicative contents
1.1 Mixing ingredients
1.2 Preparation of dough
1.3 Shaping dough

Key Competencies for Learning Outcome 2 : Make the Dough

Knowledge	Skills	Attitudes
• Description of mixing methods for fried pastries • Description of kneading methods for fried pastry • Description of quality parameters of the dough for doughnuts and chapattis • Description of proofing condition for doughnut making	• Mixing ingredients for fried pastry • Kneading dough for doughnut and for chapatti • Checking quality parameters of dough • shaping for chapatti and for doughnut • Proofing the dough of doughnuts	• Being attentive while checking quality of dough • Being respectful for instructions of trainer • Being careful while mixing ingredients • Being accurate while shaping the dough • Having precision while shaping dough

Duration: 20 hrs

Learning outcome 2 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe properly mixing methods used for fried pastry making
2. Mix ingredient properly for fried pastry dough making
3. Describe properly kneading methods used for fried pastry dough making.
4. Knead well dough for doughnut and chapatti making

5. Describe properly quality parameters for a dough of chapatti and doughnut.
6. Check properly quality of dough for fried pastry making.
7. Shape correctly dough for fried pastry making.
8. Describe properly proofing condition for doughnut making.
9. Proof correctly dough for fried pastry making.

Resources

Equipment	Tools	Materials
• Dough mixer • Auto flour sifter, • Dough divider/rounder, • Proofer	• Flour shifter • Knives • Table • Cutter • Spoon • Plates • Balance • Stainless steel tables • Pans • Long Serrated knife • Rolling pin	• Wheat flour • Salts • Sugar • Water • Fat • Oil • Milk • Eggs • Onions • Yeast • Baking product • Cleaning products

Indicative content 2.1: Mixing Ingredients

Duration: 5 hrs

Practical Activity 2.1.1: Mixing ingredients of fried pastry

Task:

You are requested to go in workshop and perform the mixing methods for doughnut and chapatti

1: Apply safety precautions (wear PPE).

2: Perform the mixing methods for doughnut and chapatti making

3: Present the final products to the whole class.

4: For more clarification read key reading 2.1.1

5: Perform the task provided in application of learning 2.1

Key readings 2.1.1: Mixing ingredients of fried pastry

- **Description of mixing methods for fried pastries**
  - ✓ **Mixing**: it is a process of combining various ingredients together to create a homogeneous dough that will form the base of the pastries. The mixing process plays a significant role in determining the texture, taste, and overall quality of the final product.
  - ✓ **Purpose of mixing**
    - To combine all ingredients into a uniform, smooth dough during mixing.
    - To distribute the ingredients evenly throughout the dough. during mixing
    - To distribute the yeast cell throughout the dough during mixing
    - Breakdown and mix fats and liquids
    - Activate the formation of gluten
    - Incorporate air into the mixture
  - ✓ **Mixing Methods**
    - **Beating**: This is the process of creating air or gluten by quickly mixing ingredients. You accomplish this by using a spoon or the paddle attachment on a mixer.
    - **Blending**: This is used to distribute the ingredients in a batter or mixture evenly. Several tools can be used to blend a mixture. You can use a spoon, rubber spatula, whisk, or the paddle attachment on a mixer.

- **Creaming**: This is when you incorporate air while combining softened fats and sugar. Use the paddle attachment of the mixer on medium for creaming.
- **Cutting**: This is done to mix fats into dry ingredients such as butter into pie dough. Depending on your final product, you can cut a mixture with a pastry cutter, your fingers, or the paddle attachment on your mixer.
- **Folding**: Folding is used to mix delicate ingredients like whipping cream or whipped eggs into a dough or batter. When folding in ingredients, use a rubber spatula or a balloon whisk.
- **Kneading**: This is done to create gluten in your product. Gluten provides the structure for your finished product. Use a dough hook for kneading. If you must do it by hand, fold vigorously in a rhythm to encourage the gluten forming process.
- **Sifting**: This process removes lumps from dry ingredients and aerate the ingredients. To accomplish this, my a rotating sifter or mesh strainer.
- **Stirring**: This is mixing the ingredients by hand using a rubber spatula, spoon, or whisk.
- **Whipping**: This is when you beat a mixture vigorously to incorporate air. To whip a mixture such as American buttercream icing , use the whip attachment for your mixer or whisk.

✓ **Mixing procedures for doughnut making**

- Flour mixture is poured into a large mixing bowl
- Wet ingredient is added.
- Wet yeast slurry (for leavening) is mixed separately and carefully added to the flour water mixture
- Dough mixer then begins its work
- Dough hook mixes

✓ **Mixing for chapatti making**

- Flour mixture is poured into a large mixing bowl
- Wet ingredient is added.
- Dough mixer then begins its work
- Dough hook mixes

Points to Remember

- Mix dry ingredients before wet ingredients for better-mixed dough.
- Mix ingredients by using more than one mixing method in order to have good dough.
- Be careful for mixing water with other ingredients, amount of water count based on the wet ingredient used and it is better to add water gradually.
- Remember that you can mix ingredients by using hand or dough mixer, while using hands take more time than dough mixer.

Application of learning 2.1.

You are requested to visit fried pastry making company located around your school and mix ingredients used for doughnut and chapatti making and prepare study visit report.

Indicative content 2.2: Preparation of Dough

Duration: 7 hrs

Practical Activity 2.2.1: Preparation of dough for doughnut and chapatti

Task:

In this activity, you requested to prepare dough for doughnut and chapatti through kneading, checking the quality of the dough and proofing the dough.

1: Apply safety precautions.

2: Perform kneading, checking the quality of dough, and proofing the dough for doughnut and chapatti

3: Present the final product to the whole class.

4: For more clarification read key learning 2.2.1

5: Perform the task provided in the application of learning 2.2

Key readings 2.2.1: Preparation of dough for doughnut and chapatti

- **Kneading the Dough for Doughnuts:** Kneading is a crucial step in making doughnuts as it develops the gluten in the dough, which gives the doughnuts their characteristic chewy texture. To knead dough for doughnuts, start by mixing all the ingredients together until they form a shaggy dough. Then, turn the dough out onto a lightly floured surface and knead it for at least 10 minutes until it becomes smooth and elastic.

✓ **Kneading methods**

- **Hand Kneading:** Hand kneading is a traditional method that involves using your hands to work the dough. To hand knead, start by placing the dough on a clean, lightly floured surface. Use the heel of your hand to push the dough away from you, then fold it back over itself. Rotate the dough a quarter turn and repeat the process. Continue kneading for about 10-15 minutes or until the dough becomes smooth and elastic.
- **Stand Mixer Kneading:** Using a stand mixer with a dough hook attachment can make kneading easier and less labor-intensive. Start by placing the dough in the mixing bowl and attaching the dough hook. Turn on the mixer to low speed and let it knead the dough for about 8-10 minutes or until it becomes smooth and elastic.

✓ **The quality parameter of dough for doughnuts and chapatti**

- **Consistency and texture:**
  - The dough should have a smooth and uniform texture
  - It should be free from any lumps or clumps
  - It should be neither too sticky nor too dry
  - It should be easily handled and shaped.
- **Elasticity:** it is key factor in dough quality. The dough should have good elasticity, which allows it to stretch without tearing or breaking.

✓ **For doughnut**

- A good dough for doughnut should have the following criteria:
  - tender
  - light Soft
  - springy and smooth texture
  - Spongy-like
  - Elastic paste
  - Slightly moist

✓ **For chapatti**

The quality of a chapatti is often judged by its texture, flavor, and appearance. Here are some key parameters to consider:

Texture

- **Softness:** A good chapatti should be soft and pliable, without being overly doughy**.**
- **Even Thickness:** The thickness should be consistent throughout.
- **Breathability:** The chapatti should have a slightly airy texture, allowing the flavors to shine through.
- **Crispiness:** When cooked properly, the edges should be slightly crisp, while the center remains soft.

Flavor

- **Taste of Wheat:** The chapatti should have a distinct taste of wheat, without any off-flavors.
- **Oiliness:** While some oil is necessary for cooking, the chapatti should not be overly greasy.
- **Spices:** If using spices, they should be well-blended and enhance the flavor without overpowering the chapatti.

Appearance

- **Golden Brown Color:** The chapatti should have a uniform golden-brown color when cooked.
- **Blistering:** Small blisters or bubbles on the surface can indicate proper cooking.

- **Shape:** The shape should be round or oval, with even edges.

- **Proofing the dough**
  - **Proofing** is to allow yeast dough to rise through fermentation.
  - **Fermentation (proofing)** A process that happens in any dough containing yeast. As the yeast eats the sugars present in the dough, carbon dioxide is released, which causes the dough to expand.
  - It begins as soon as the ingredients are mixed together and continues until the dough reaches an internal temperature of 59°C during frying.
  - Fermentation affects the flavor, texture and appearance of the final product.
  - **Proofing conditions:**
    - **Humidity** is controlled in proofer that can provide the necessary relative humidity of approximately **80 percent**, so the surface of the dough does not dry out.
    - **Temperature** for the final proof should be between **27**° and **32°C** for maximum yeast activity; the ideal temperature is **30°C**.
    - If the temperature during this final proof is too high, insufficient yeast activity will result in poor grain and loss of flavor, and the shelf life of the donut will be shorter
    - If the temperature that is too low will result in a longer proofing time.
- **Kneading procedures**
  - **Spread flour on your work surface:** to prevent the dough sticking on work surface.
  - **Turn out the dough:** Carefully transfer the dough from the mixing bowl onto the floured surface.
  - **Initial kneading:** Use the heel of your hand to push the dough away from you, then fold it back toward you. Rotate the dough 90 degrees and repeat the process.
  - **Adding more flour if necessary**: If the dough is too sticky, you can sprinkle a bit more flour as needed to prevent sticking, but avoid adding too much flour, as it can make the dough tough.
  - Continue kneading for about 10-15 minutes or until the dough becomes smooth and elastic.
- **Proofing procedures**
  - Set a proofer the condition of proofing: temperature, RH and time
  - Put a baking sheet contain the shaped dough
  - Monitor proofing process

Points to Remember

- Always remember to spread the flour on working table to avoid sticking of dough on that table.
- You should knead the dough until it becomes smooth, elastic and when dough stretch without tearing and breaking.
- Remember that you can knead dough by using hand or dough mixer, while using hands take more time than dough mixer.
- Be aware that the main proofing condition of doughnut are time, temperature and relative humidity.

Application of learning 2.2.

You are requested to visit fried pastry making company located around your school and perform tasks of kneading, checking the quality of dough and proofing the dough for doughnut and chapatti making then prepare study visit report.

Indicative content 2.3: Shaping the Dough

Duration: 3 hrs

Practical Activity 2.3.1: Shaping the doughnut and chapatti

Task:

In this activity, you are requested to go to the food processing workshop and perform the shaping of doughnuts and chapatti.

1: Apply safety precautions (wear PPE).

2: Perform shaping of the dough for doughnut and chapatti.

3: Present the final product to the trainer.

4: For more clarification read key learning 2.3.1.

5: Perform the task provided in the application of learning 2.3.

Key readings 2.3.1: Shaping the doughnut and chapatti

Shaping is a crucial step in the process of doughnuts and chapatti making.

In doughnut making, shaping refers to the process of forming the dough into the desired shape before frying or baking. This involves rolling out the dough on a floured surface and using a doughnut cutter to cut out the individual doughnuts.

The dough is then allowed to rest and rise before being fried or baked, In chapatti making, shaping refers to the process of forming the dough into a round, flat shape before cooking on a hot griddle. This involves dividing the dough into small portions, rolling each portion into a ball, and then flattening it with a rolling pin. The flattened dough is then cooked on a hot griddle until it puffs up and develops brown spots.

- ✓ Rolling is a common technique used in shaping pastry dough. It involves flattening the dough using a rolling pin to achieve an even thickness. This technique is used in making pie crusts, biscuits, and other pastries that require a flat surface.

The shaping process is important in both doughnut and chapatti making because it helps to ensure that the final product is evenly cooked and has an appealing appearance. Proper shaping can also help to prevent the dough from sticking or tearing during cooking.

When it comes to shaping dough for doughnuts, there are a few different methods that can be used depending on the desired outcome.

- ✓ **First method** is to roll out the dough on a floured surface until it is about 1/2 inch thick. Then, use a doughnut cutter to cut out the doughnuts. A doughnut cutter is a round cutter with a smaller circular cutter in the middle, which creates the classic doughnut shape. After cutting out the doughnuts, let them proof for about 30 minutes before frying.
- ✓ **Second method** is to roll out the dough and use a biscuit cutter or round cookie cutter to cut out circles of dough. Then, use a smaller round cutter or piping tip to cut out the center of each circle. This method creates doughnut holes or smaller, bite-sized doughnuts.
- ✓ **Third method is to shape the dough by hand.** Roll the dough into a ball and then use your hands to create a hole in the center. Stretch and shape the dough until it is even and has a uniform thickness all around. This method can create more irregularly shaped doughnuts, but can also allow for more creativity in terms of shaping and filling the doughnuts.

Points to Remember

- Shape the dough with either hand, dough moulder or cutters for shaping doughnut and chapatti
- Use rolling pin or dough roller to flatten the dough in even thickness.
- Rolling is method that are used for chapatti and doughnut also for desired shapes.
- Make good shapes in order to have excellent shaped final products.

Application of learning 2.3.

You are requested to visit fried pastry making company located around your school province and shape the dough for doughnut and chapatti making then prepare study visit report.

Learning outcome 2 end assessment

Theoretical assessment

1. Choose by Encircling the right meaning of the term Kneading a dough in fried pastry making
   A. It is a process of starting mixing all the ingredients together until they form a soggy dough.
   B. It is a process of pulling and stretching, as it homogenizes the ingredients and develops the dough by forming the gluten into elongated and interlace fibers that form the basic structure of the doughnut.
   C. It is a process of pulling and stretching, as it homogenizes the ingredients and under develops the dough by destroying the gluten into elongated and interlace fibers that form the basic structure of the doughnut.
2. Circle the quality criteria of dough for doughnut making.
   a) tenderless
   b) light Soft
   c) springy and smoothless texture
   d) Soggy-like
   e) Elastic paste
3. Answer true if statements are correct or false if statements are incorrect.
   a) The dough should have a smooth and different texture
   b) Proofing is to allow yeast dough to rise through fermentation.
   c) Shaping refers to the process of forming the dough into the desired shape after frying or baking.
   d) Rolling involves flattening the dough using a rolling pin to achieve an even thickness.
   e) Mixing is a process of combining various ingredients together to create a homogeneous dough that will form the base of the pastries.
4. Those are steps followed in kneading the dough of doughnut and chapatti making, write the steps in orderly manner during kneading dough by using hand.
   a) Use the heel of your hand to push the dough away from you, then fold it back over itself.
   b) Start by placing the dough on a clean, lightly floured surface.
   c) Continue kneading for about 10-15 minutes or until the dough becomes smooth and elastic.
   d) Rotate the dough a quarter turn and repeat the process.
5. The column A contain mixing methods used in fried pastry making and the column B contain their meanings. Match by writing the answer in provided space with the corresponding digit.

ANSWER	COLUMN A	COLUMN B
……..	1. Kneading	a. It is the process of creating air or gluten by quickly mixing ingredients. You accomplish this by using a spoon or the paddle attachment on a mixer.
…….	2. Stirring	b. It is used to distribute the ingredients in a batter or mixture evenly. You can use a spoon, rubber spatula, whisk, or the paddle attachment on a mixer.
…….	3. Beating	C. It is done to create gluten in your product. Gluten provides the structure for your finished product. Use a dough hook for kneading, it must be also accomplished by hand to encourage the gluten forming process.
……	4. Blending	d. It is mixing the ingredients by hand using a rubber spatula, spoon, or whisk.

6. Fill in the blanks of the following sentences below with given appropriate term (Temperature, proofing, time, Humidity ,Shaping, kneading)
   a) ……..refers to the process of forming the dough into a round, flat shape before cooking on a hot griddle.
   b) ……is controlled in proofer that can provide the necessary at approximately 80 percent, so the surface of the dough does not dry out.
   c) …….for the final proof should be between 27° and 32°C for maximum yeast activity; the ideal temperature is 30°C.
   d) If the temperature that is too low will result in a longer proofing…….

Practical assessment

SALAMA bakery Ltd located in GISAGARA district produce different pastry products, in three days ago produce poor quality products like lumps of fats means doughnuts made from ingredients which are not properly mixed and shaped due to loosing of skilled worker in making dough and shaping dough for doughnut. Bakery manager hired you as skilled and knowledgeable in fried pastry making to overcome the problems by:

- Mixing ingredients for doughnut and chapatti
- Kneading the dough
- Shaping doughnut and chapatti

END

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Indicative contents
3.1 Heating the oils for fried pastry making
3.2 Frying the dough for fried pastry making
3.3 Cooling doughnut
3.4. Check its quality parameters for fried pastry

Key Competencies for Learning Outcome 3: Fry the Dough

Knowledge	Skills	Attitudes
• Description of heating oil Conditions for doughnut and chapatti • Description of frying methods of doughnut and chapatti • Identification of quality parameters for well-cooked doughnuts and chapattis. • Description of cooling conditions for doughnut	• Heating oil for doughnut and chapatti frying • Frying of pastry products • Cooling the fried pastries • Checking quality of pastry products	• Taking self-care while frying doughnut and chapatti • Being accurate while heating oil • Being honest while cooling fried pastry • Being safe while frying doughnut and chapatti • Being attentive while checking quality

Duration: 20 hrs

Learning outcome 3 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe properly heating oil condition for fried pastry making.
2. Heat properly oil used for frying doughnut and chapatti.
3. Perform properly frying process for fried pastries making.

4. Identify correctly quality parameters for doughnut and chapatti making.
5. Check appropriately quality of doughnut and chapatti according to quality parameters.
6. Describe correctly cooling conditions for doughnut making.
7. Cool properly doughnut according to quality requirements.

Resources

Equipment	Tools	Materials
• Fryer • Gas stove • Projector	• Slotted Spoon • plates • Stainless steel Tables • Pans • Cooling Racks • Long Serrated Knife • Trays • Projector • Computer • Books	• Cooking Oil

Indicative content 3.1: Heating Oil for Fried Pastry Making

Duration: 5 hrs

Practical Activity 3.1.1: Heating the oil for frying doughnuts and chapatti

Task:

In this activity, you are requested to go in food processing workshop and perform heating oil for doughnut and chapatti.

1: Apply safety precautions.

2: Perform heating oil used for frying doughnut and chapatti.

3: Present the final product to the whole class.

4: For more clarification read key learning 3.1.1.

5: Perform the task provided in the application of learning 3.1.

Key readings 3.1.1: Heating the oil for frying doughnuts and chapatti

- **Heating oil in fried pastry making** refers to the process of raising the temperature of cooking oil to a specific level suitable for frying pastries.
  - **Purpose of heating oil**
    - Proper heating minimizes oil absorption, producing less greasy pastries
    - Hot oil kills harmful bacteria, ensuring food safety.
    - Correct oil temperature promotes an appealing golden-brown finish.
    - The Maillard reaction and caramelization occur in hot oil, enhancing flavor.
    - Pre-heating oil ensures even heat distribution, allowing pastries to cook uniformly.
  - **Condition for heating oil for frying doughnut**

    Temperature: The temperature of the heating oil is a critical factor in frying doughnuts. The ideal temperature range for frying doughnuts is typically between (175°C) and (180°C**).** Heat the oil in a deep fryer until oil reaches a temperature of175℃-180oC.Use a kitchen thermometer for maximum precision. To avoid a greasy taste, heat the oil up on medium high for five minutes, and then gently reduce the heat until thermometer reads 175℃-180°C.Frying Oil temperature ranges from 188 to 193oC and affects doughnut volume, crust colour, spread and fat absorption.

- **Condition for heating oil for frying chapatti**

  Heat the oil in a deep fryer, large saucepan or wok, 150 to 180°C at this temperature chapatti will become crisp and golden and rise to the top if placed in it. We use pan-frying as lubricating the pan, place a filled chapatti in the hot oil and spoon over a little oil over the top, cook each side for around 15 seconds.

  Oil Quality: It is recommended to use oils with high smoke points, such as vegetable oils (canola, soybean, or sunflower oil), peanut oil, or refined coconut oil.

- **Procedures of heating oil for frying doughnut and chapatti**

  - **Choose the right oil:** The first step is to select the appropriate oil for frying doughnuts and chapatti. The selection of frying oil depends on cost, stability or shelf life, flavour, availability, smoke point, and nutritional profile mainly determined by the amount of trans and saturated fatty acids that are mandatorily declared on current food labels.
  - **Measure the quantity of oil**: The next step is to measure the amount of oil needed for frying. The quantity of oil will depend on the size of your frying vessel and the number of doughnuts you plan to fry.
  - **Heat the oil:** Place a deep, heavy-bottomed pot or a deep fryer on the stove and pour in the measured amount of oil and preheat oil slowly to ensure even heating and prevent any sudden temperature fluctuations. Rapidly heating the oil can lead to uneven cooking and result in doughnuts that are undercooked on the inside or burnt on the outside.
  - **Test the temperature of oil:** it is advisable to test the temperature of the oil by dropping a small piece of dough into it.

Points to Remember

- Use adjusted and calibrated thermometer to test if oil reaches at desired temperature.
- Remember that if your oil looks cloudy or foamy, oil must be discarded.
- The best oil to be chosen is the one with the least flavour such as vegetable oil and canola oil.
- Heat the oil for determined temperature especially for doughnut and chapatti to prevent greasy caused by unheated oil and burnt caused by overheated oil.

Application of learning 3.1.

You are requested to visit fried pastry making company located around your school and heat oil for frying doughnut and chapatti making and prepare study visit report.

Indicative content 3.2: Frying Dough for Fried Pastry Making

Duration: 5 hrs

Practical Activity 3.2.2: Application of frying methods for fried pastry making

Task:

In this activity, you are requested to go in food processing workshop to perform frying method of doughnut and chapatti.

1: Apply safety precautions.

2: Perform frying the dough for doughnut and chapatti.

3: Present the final product to the whole class.

4: For more clarification read key learning 3.2.1.

5: Perform the task provided in application of learning 3.2.

Key readings 3.2.1: Application of frying methods for fried pastry

- **Frying** in fried pastry making refers to the cooking method where the pastry dough is submerged in hot oil or fat until it becomes golden brown and crispy. Frying involves transferring heat from the oil to the dough through direct contact, resulting in a cooked, flavorful and often crispy exterior while keeping the inside tender or airy, depending on the type of pastry.
- **Frying methods for fried pastries**
  - **Pan-frying or shallow frying** is a fast-cooking method for small, tender cuts in a pan containing a small quantity of hot fat, oil, butter, or clarified butter. It's similar to sautéing but requires more fat and often lower temperatures this method is used for chapatti

    PROCEDURE:
    - Heat on a frying pan over the medium flame at 150-180 °C.
    - Place circular chapatti sheet(s) in a hot pan
    - Fry each side until it's golden brown on the medium heat to prevent the burning of chapatti or use a pair of tongs to flip over the other side.
    - Repeat for all the rolled-out chapattis and place in a plastic wrap or container and cover to serve.
  - **Deep frying** is a cooking method where food is completely submerged in hot oil (typically between 175^{O}C to 180 ^{O}C) to cook it quickly and evenly. It considered a Dry Heat Method of cooking.

It uses heat conduction and natural convection to transfer heat to doughnut submerged in fat. Thus, begins that golden brown delight known as deep fried doughnut.

PROCEDURE:

- Heat the oil in a deep fryer until oil reaches a temperature of 175℃-180ºC.
- Slide the doughnuts into the oil carefully
- Turn the doughnuts over when they float up to the surface.
- Fry evenly on both sides until golden brown. Thus, Doughnuts are fried in two stages with first stage (before turning) being slightly hotter and longer than the second stage.
- Remove doughnuts from oil and let drain on a wire rack

Points to Remember

- Make sure that you place the doughnut in already heated oil at desired temperature.
- Remove doughnuts in oil and put them on cooling rack or other tools which can lets the oil drain out of doughnut
- While you are frying chapatti look for temperature of pans, leave while to a stove if it is too heated.
- Sieve the dirt from the oil in order to prevent looking dark or dirty of doughnut and chapatti during frying.

Application of learning 3.2.

You are requested to visit fried pastry making company located around your school and perform frying process for doughnut and chapatti making then prepare study visit report.

Indicative content 3.3: Cooling doughnut

Duration: 5 hrs

Practical Activity 3.3.1: Cooling and checking of quality parameters for fried pastries

Task:

You are requested to go in a food processing workshop, then to cool and check the quality parameters of doughnuts and chapatti.

1: Apply safety precautions.

2: Perform cooling and checking the quality parameters of doughnut and chapatti.

3: Present the final product to the whole class.

4: For more clarification read key learning 3.3.1

5: Perform the task provided in the application of learning 3.3

Key readings 3.3.1: Cooling

Cooling refers to the process of removing heat from a doughnut, typically resulting in a decrease in temperature and impacting the final texture, allowing for glazing, and ensuring safe handling.

It is a physical operation in which the heat is removed from process fluid or solid by heat exchange or it is the removal of heat usually resulting in a lower temperature.

Target Temperature: The ideal cooling temperature for doughnuts is around room temperature (70°F or 21°C). This allows for safe handling, decorating, or glazing.

Cooling Rate: While a rapid initial cool is desirable, avoid drastic temperature changes. Allow the doughnuts to cool gradually to prevent the center from drying out excessively.

Cooling methods for doughnut:

- **Air Cooling:** Simply place the freshly fried on a wire rack or a clean, dry surface to allow air to circulate around them.
- **Fan Cooling:** If you have a large quantity of doughnuts to cool, you can use fans to increase air circulation, which will speed up the cooling process**.**
- **Room Temperature Cooling:** Let the doughnuts cool at room temperature. This method may take longer, but it works well for smaller batches of doughnuts**.**
- **Refrigerator Cooling:** If you want to cool doughnuts quickly, you can place them in the refrigerator for about 10-15 minutes.

Be sure not to leave them in for too long, as they may become too firm.

- **Freezer Cooling:** In case you need to cool the doughnuts rapidly, you can put them in the freezer for a short period (around 5-10 minutes). Keep a close eye on them to prevent them from freezing.

- **Cooling condition for doughnut**
  - Cooling is done at room temperature, in refrigerator and freezer
  - Cooling time is 1-2 hours depending on the size of doughnut
  - Temperature: Ideally, the cooling area should be between 60°F (15°C) and 70°F (21°C).
  - Humidity: Low humidity is preferred to prevent the doughnuts from becoming soggy.
  - Airflow**:** Gentle airflow can help speed up the cooling process without drying out the doughnuts.

Points to Remember

- Cool doughnut around room temperature and prevent drying out.
- Monitor cooling condition which are: time, temperature, humidity, airflow
- Check the quality of doughnut after cooling, because if the doughnut heated to temperature above 30^{o}C (86^{o}F) check taste becomes more difficult.

Application of learning 3.3.

You are requested to visit fried pastry making company located around your school and perform cooling and checking the quality of doughnut and chapatti then prepare study visit report.

Indicative content 3.4: Check Quality Parameter for fried pastry

Duration: 5 hr

Theoretical Activity 3.4.1: Description of quality parameters of fried pastry

Tasks:

1: you are requested to answer the following question below related to calculation of ingredient ratio:

i. What do you understand by the term “Quality parameter in fried pastry making”?
ii. What do you know about the quality parameters and defect for doughnut and chapatti?

2: Provide the answer of asked questions by writing them on papers.

3: Present their findings to the classmates and trainer.

4: For more clarification read the key readings 3.4.1.

Key readings 3.4.1: Description of quality parameters of fried pastry

✓ A **quality parameter** for a fried pastry product refers to specific measurable attributes used to evaluate its overall quality. These parameters ensure the product meets desired standards in terms of appearance, texture, flavor, and safety.

✓ **The quality parameters for fried pastry products include**:

Appearance:

- **Color:** Golden brown, uniform, and free from burnt spots.
- **Shape and Size:** Consistent and well-defined shapes with minimal deformities.
- **Surface Texture:** Smooth or appropriately crisp, depending on the pastry type.

Texture:

- **Crispness:** Should be crisp on the outside (if required).
- **Tenderness:** Soft and fluffy inside (for some pastries).
- **Flakiness:** Distinct flaky layers for specific pastries like croissants.

Flavor and Taste:

- **Aroma:** Pleasing and characteristic of the pastry type.
- **Taste:** Balanced sweetness, saltiness, and richness, free from off-flavors caused by old or reused frying oil.

1. **Moisture Content:** Controlled moisture ensures the pastry is neither too dry nor too greasy.
2. **Oil Absorption:** Minimal oil absorption is crucial for health and texture.

3. **Freshness:** Resistance to staling, microbial spoilage, and rancidity from oil.
4. **Food Safety and Hygiene:** Free from contaminants, harmful microorganisms, and safe for consumption.

✓ **Fried pastry defect**

Doughnut defect

1. Shape Defects:

- **Flat Doughnuts:** Caused by over-proofing or using too little dough.
- **Irregular Shape:** Due to uneven cutting or improper handling of the dough.
- **Hollow Center:** Caused by over-proofing or under-mixing, leading to too much air inside.

2. Surface Defects:

- **Cracked Surface:** Results from dough that is too dry or under-proofed.
- **Blisters:** Due to improper mixing or over-proofing, causing air bubbles to form on the surface.
- **Wrinkled Skin:** Caused by letting the dough sit too long before frying or using too much sugar.

3. **Texture Defects:**

- **Dense or Heavy Doughnuts:** Caused by under-proofing, using too much flour, or insufficient frying temperature.
- **Dry and Crumbly:** Due to overcooking or lack of moisture in the dough.

4. Frying Defects:

- **Greasy Doughnuts:** Result from frying at too low a temperature, causing the dough to absorb excess oil.
- **Burnt Exterior and Raw Interior:** Happens when the oil temperature is too high, cooking the outside too quickly.
- **Uneven Browning:** Caused by inconsistent oil temperature or overcrowding the fryer.
- **Case hardening** in doughnut production refers to the formation of a hard, dry outer layer while the interior remains undercooked or doughy. This defect typically occurs during the proofing or frying process due to improper moisture management or temperature control.

5. Flavor Defects:

- **Bitter Taste:** Due to too much baking powder or improper fermentation.

- **Off-flavors:** Can result from using old oil or improper storage.

Practical Activity 3.4.2: Checking the quality parameters for fried pastry

Task:

You are requested to go to the food processing workshop and check the quality parameter for fried pastry products.

1: Apply safety precaution (wear PPE)

2: Perform checking for the quality parameters fried pastry products.

3: Present the findings to the whole class.

4: For more clarification read key **reading 3.4.2**

5: Perform the task provided in application of learning **3.4**

Key readings 3.4.2.: Checking the quality parameters for fried pastry

The physical appearance of fried pastry can be evaluated systematically by examining **color**, **surface texture**, **shape**, and **defects**.

- ✓ **Selection of the sample**

Select the Samples by choose a representative set of fried pastries from the batch.
Ensure the sample are cool and dry to avoid any distortion caused by moisture or heat.
Setup the Evaluation Area.

- ✓ **Check color**

Method:

Visual Observation:

Hold the pastry at eye level under even lighting.

Look for: Consistency of color across the surface.

Presence of dark spots which indicates (overcooking)

Presence of pale areas which indicates (undercooking).

Note any irregularities observed.

- ✓ **Check texture**

Methods:

a. **Visual Observation**:

Examine the surface for:

Smoothness: Check if the surface is even or has a uniform blistering pattern.

Glossiness: if the surface appears shiny (indicating excessive oil)

Oiliness: Look for visible oil pooling or dripping.

b. **Tactile (tangible) Test**:

Lightly touch the surface to confirm texture:

- **Dry and crisp surface** indicates proper frying.
- **Oily or sticky surface** indicates excess oil absorption.

✓ **Check shape and size**

Ensure the pastry conforms to the intended size, shape, and symmetry.

Methods:

a. **Measure Dimensions**:

Use a ruler or calipers to measure:

- Length, width, and thickness.
- Compare to standard specifications or expected dimensions.

b. **Check for Shape Uniformity**:

Visually inspect:

- Symmetry (shape) of the pastry (e.g., round, square, or elongated as intended).
- Deformities such as warping, irregular edges, or collapsed areas.

✓ **Examine for defects**

Identify any visual defects that might affect product quality.

Methods:

a. Check for Burn Marks:

Look for areas that appear excessively dark or burnt, which may indicate uneven frying or temperature control issues.

b. Check for Cracks or Breakage:

Inspect the pastry for cracks or broken edges that might occur due to handling or improper dough consistency.

c. Check for Air Bubbles or Blisters:

Observe whether the surface has large or uneven air pockets, which can indicate dough fermentation or frying irregularities.

d. Look for Foreign Materials:

Ensure the pastry is free from visible contaminants such as burnt crumbs or oil residues.

Points to Remember

- You have to remember that the fried pastry products are different according to their quality parameters.
- Always, it is an obligation to check the quality of products supplied on the market.
- To satisfy the consumer's preference, work survey about quality of product needed/requirement on the market to update your product.

Application of learning 3.4.

You are requested to go in fried pastry workshop and check the quality of doughnut and chapatti making and prepare work report.

Learning outcome 3 end assessment

Theoretical assessment

2. **Underline** the ideal frying temperature for frying chapatti by choosing in the following data:
   a) 140°C
   b) 198°C
   c) 180°C
   d) 218°C
2. **Arrange** those frying steps for doughnut as they are followed during frying.
   a) Turn the doughnuts over when they float up to the surface
   b) Remove doughnuts from oil and let drain on a wire rack
   c) Heat the oil in a deep fryer until oil reaches a temperature of 175℃-180oC.
   d) Fry evenly on both sides until golden brown. Thus, Doughnuts are fried in two stages with first stage (before turning) being slightly hotter and longer than the second stage
   e) Slide the doughnuts into the oil carefully.
3. Select by **circling** the right selection criteria of oil used for frying doughnut and chapatti
   a) Smoke point
   b) Boiling point
   c) stability
   d) golden brown
   e) nutritional profile
4. Answer **true** if statements are correct or **false** if statements are incorrect.
   a. Heating stop to absorb too much oil and good texture.
   b. It is advisable to test the temperature of the oil by dropping a small piece of dough into it.
   c. During making doughnut, we heat the oil in a deep fryer until oil reaches a temperature of 175℃-180oC.
   d. Pan-frying is a fast cooking method for small, tender cuts in a pan containing a small quantity of hot fat, oil, butter, or clarified butter.
   e. Doughnut should has a surface that is uniform and some cracks
5. Table below shows the quality parameters for chapatti making, match column A contain parameters and column B shows its corresponding quality or criteria to those parameters and write the answer in provided space with corresponding digit

ANSWER	Column A	Column B
……	2. Texture	a) golden brown
……	3. Flavour	b) soft and firm

……..	4. Colour	c) fried flavour
……..	5. shape (form)	d) Burn spots on the surface
……..	6. thickness	e) Circular form
……..	7. spots on the surface	f) No cracks
……..		g) Desire thickness

6. Fill in blanks of the following sentences using the given words (Pan-frying, humidity, Temperature, Deep frying, stir frying, time,)
   a) Cooling ……is 1-2 hours depending on the size of doughnut
   b) ……..is a fast cooking method for small, tender cuts in a pan containing a small quantity of hot fat, oil, butter, or clarified butter.
   c) ……. Ideally, the cooling area should be between 60°F (15°C) and 70°F (21°C).
   d) Low …….. is preferred to prevent the doughnuts from becoming soggy.
   e) …….. is a cooking method where food is completely submerged in hot oil (typically between 175^{O}C to 180 ^{O}C) to cook it quickly and evenly.

Practical assessment

NIYO bakery Ltd located in GISAGARA district produce different pastry products. Bakery have been producing doughnut and chapatti have dark brown colour and too greasy due to loosing of skilled worker in frying doughnut and chapatti. Managing Director of NIYO Bakery hires you as an assistant technician in food processing to fry doughnut and chapatti products to satisfy consumers' needs by respecting the conditions. All materials, tools and equipment are availed in NIYO bakery workshop.

TASK:

- Fry doughnut and chapatti
- Cool doughnut
- Check quality of fried doughnut and chapatti

END

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Indicative contents
1.1 Identification of packaging material
1.2 Packaging of fried pastries
1.3 Storing of fried pastries

Key Competencies for Learning Outcome 4: Store Fried Pastries

Knowledge	Skills	Attitudes
• Description type of packaging for doughnut and chapatti • Identification of packaging conditions for fried pastries • Identification of labelling requirements • Description of storage condition for doughnut and chapatti • Description of storage management of fried pastries	• Selecting of packaging materials of doughnut and chapatti • Packaging of doughnut and chapatti • Labelling of fried pastries • Store fried pastries	• Being attentive while storing fried pastries • Being accurate while selecting packaging materials • Being careful while labelling pastry products • Being consistent while packaging fried pastries

Duration: 10 hrs

Learning outcome 4 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe properly types of packaging materials for fried pastries
2. Select appropriate packaging materials for fried pastries
3. Pack properly cooled doughnut and chapatti according to product requirements
4. Identify properly labelling requirements according to product specification.
5. Label correctly fried pastries package according to product specifications.

6. Describe properly storage condition for doughnut and chapatti making.
7. Store properly packaged doughnut and chapatti according to product specification.

Resources

Equipment	Tools	Materials
• Packaging machine • PPE • Sealing machine • Labelling machine • Stainless steel table	• Pan • Table • Rack • Notebooks • Store card	• Doughnut • Chapatti • Packaging Materials • Scotch • Labels

Indicative content 4.1: Identification of Packaging Material

Duration: 4 hrs

Theoretical Activity 4.1.1: Description of packaging materials

Tasks:

1: You are requested to describe packaging materials of a fried pastry by answering the following question:

I. What do you know about this term "packaging materials" in fried pastry making?
II. Based on your experience, what are the criteria to be considered during selecting packaging materials of doughnut and chapatti?
III. How can you differentiate those types of packaging materials:
   a. Paper based materials
   b. plastic based materials

2: Provide the answer of asked questions by writing them on paper.

3: Present their findings the classmates and trainer.

4: For more clarification read the key readings 4.1.1

Key readings 4.1.1.: Description of packaging materials

- **Key definitions**
  - **Packaging:** is to surround or wrap fried products with suitable protective material for distribution, storage, sale, and use.
  - **Packaging in fried pastry** refers to the methods used to contain and protect fried pastries during production, transportation, and sale. It involves selecting appropriate packaging materials, designing packaging structures, and ensuring that the packaging preserves the quality, freshness, and appeal of the pastry.
  - Key functions of packaging in fried pastry: Protection, Preservation, Presentation, Convenience
  - **Packaging materials in fried pastry** are the substances/materials used to enclose and protect the product. These materials must be carefully chosen to maintain the pastry's quality, freshness, and appeal.
- **Purposes of packaging doughnut and chapatti**
  - Too keep food in good condition until it is sold and consumed.
  - To encourage customers to purchase the products.
  - To increase shelf life.
  - To prevent wastage due to spoilage.

- To help in retention of nutritive value of fried pastry.
- Protection from mechanical damage in transport, loading and unloading.
- Protect from loss of moisture and any foreign odour contaminants.
- Protect from foreign body infestation
- Legal compliance for values and ingredients for consumers.

- **Type of packaging**
  - **Primary packaging** consists of packaging food product in primary or sales packaging material i.e. packaging conceived so as to constitute a sales unit to the final user. The packaging material is therefore, in direct contact with the product. It provides the initial and usually the major protective barrier. Examples of primary packages include metal cans, glass bottles and plastic pouches. It is frequently the only primary package which the consumer sees and purchases at retail outlets and use.
  - **Secondary packaging** consists of packaging food product in grouped packaging or secondary packaging, i. e. packaging conceived so as to constitute at the point of purchase a grouping of a certain number of sales units for instance a corrugated fibreboard case or shipping container, contains a number of primary packages. It is the physical distribution carrier and is sometimes so designed as it can be used in retail outlets for the display of primary packages.
  - **Tertiary packaging** involves the usage of transport packaging or tertiary packaging i. e. packaging conceived so as to facilitate handling and transport of a number of sales units. A tertiary package is made up of a number of secondary packages, the common example being a stretch-wrapped pallet of corrugated cases.

- **Types of Packaging Materials Used in Fried Pastry**

  Packaging materials play a crucial role in preserving the quality and freshness of fried pastries. Here are the common types:

  Paper-based Materials
  - **Kraft paper:** A sturdy and eco-friendly option, often used for pastry boxes and bags.
  - **Coated paper:** Provides a smooth finish and better print quality, ideal for premium packaging.
  - **Waxed paper:** Offers a barrier against moisture and grease, suitable for wrapping individual pastries.

- **Cardboard:** Used for pastry boxes and inserts, offering rigidity and print surface.

Plastic-based Materials

- **Polyethylene (PE):** Commonly used for plastic bags, offering flexibility and durability.
- **Polypropylene (PP):** Provides better clarity and heat resistance, ideal for clamshell containers.
- **Polystyrene (PS):** Offers good insulation but has environmental concerns, used for foam trays.

Other Materials

- **Aluminum foil:** Offers an excellent barrier against moisture, oxygen, and light, used for wrapping pastries.

Practical Activity 4.1.2: Selection of packaging materials

Task:

In this activity, there is different packaging materials used for food product in food processing workshop. You are requested to select appropriate packaging material used for packaging doughnut and chapatti.

1: Apply safety precautions.
2: Perform selection of packaging material of doughnut and chapatti.
3: Present the final product to the whole class.
4: For more clarification read key learning 4.1.2.
5: Perform the task provided in application of learning 4.1.

Key readings 4.1.2: Selection of packaging materials

- **Factors to Consider When Choosing Packaging Materials**
  - ✓ Should be non-toxic
  - ✓ Protect against contamination
  - ✓ Act as a barrier to moisture loss or gain and oxygen entrance.
  - ✓ Protect against entrance of odours or environmental toxicants
  - ✓ Light weight
  - ✓ Provide resistance to physical damage
  - ✓ Be transparent
  - ✓ Be tamper-resistant or tamper- evident

- ✓ Should be easy to open
- ✓ Sealing capability
- ✓ Be disposed of easily
- ✓ Meet size, shape and weight requirements
- ✓ Have appearance, printability features
- ✓ Be low cost
- ✓ Be compatible with the food

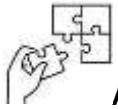
- **Selecting packaging materials for doughnuts**

  It involves considering factors such as preserving freshness, maintaining product quality, and ensuring convenience for both customers and retailers. Here are some considerations for selecting packaging materials for doughnuts and chapatti:

  - ✓ **Freshness and Shelf Life**: Choose packaging materials that help preserve the freshness of the doughnuts. Materials with good barrier properties, such as those resistant to moisture and air, can help extend the shelf life of the product.
  - ✓ **Material Safety and Compliance:** Ensure that the selected packaging materials comply with food safety regulations and standards. Materials should be food-grade, non-toxic, and free from harmful chemicals that could potentially leach into the doughnuts.
  - ✓ **Durability and Protection:** Select materials that provide adequate protection during transportation and handling. Doughnuts are delicate, and the packaging should prevent crushing or damage to the product.
  - ✓ **Convenience for Handling and Storage:** Choose packaging that is easy for customers to handle and open. Additionally, consider the convenience for retailers in terms of storage and display.
  - ✓ **Environmental Impact:** Given the increasing awareness of environmental issues, consider eco-friendly packaging options. Materials that are recyclable, biodegradable, or made from sustainable sources can appeal to environmentally conscious consumers.
  - ✓ **Packaging Design:** Consider the design of the packaging in relation to the specific needs of doughnut presentation. Packaging should be designed to accommodate the shape and size of the doughnuts and may include features like trays or compartments to prevent sticking.

Points to Remember

- Ideal packaging material should be transparent, moisture and oxygen barrier, non-toxic, light weight, tamper-resistant or tamper- evident, easy to open and low cost.
- There are three mostly used types of packaging materials in fried pastry making such as **plastic, paper** and **aluminum foil etc.**
- Select packaging materials for doughnut and chapatti that protect against odor, moisture, oxygen, color, from outside.
- While selecting packaging materials for doughnuts and chapatti take care on the following considerations such as Freshness and shelf Life, Environmental impact and packaging design



Application of learning 4.1.

You are requested to visit fried pastry making company located around your school and select packaging materials used for doughnut and chapatti making then prepare study visit report.

.

Indicative content 4.2: Packaging of Fried Pastries

Duration: 4 hrs

Practical Activity 4.2.1: Packaging of doughnut and chapatti

Task:

You are requested to go in food processing workshop and perform packaging of doughnut and chapatti.

1: Apply safety precaution (wear PPE).
2: Perform packaging of doughnut and chapatti.
3: Present the final product to the whole class.
4: For more clarification read key learning 4.2.1
5: Perform the task provided in application of learning 4.2

Key readings 4.2.1: Packaging of doughnut and chapatti

- **Identification of packaging conditions for fried pastries**
  - ✓ Packaging material used to pack and to store the fried products are handled under hygienic conditions and the room in which fried products are being packed should be well cleaned.
  - ✓ Packers handling naked fried pastries must use sterilized gloves.
  - ✓ Sanitizer's solutions to be used by all packers as and when required.
  - ✓ Immediately after packaging and proper labelling, the products should be placed in the rooms provided for storage under required temperature and humidity conditions.
  - ✓ Temperature: Ideally, fried pastries should be packaged at room temperature to avoid condensation.
  - ✓ Humidity: Low humidity is preferred to prevent the pastries from becoming soggy.
  - ✓ Airflow: Adequate airflow within the packaging is crucial. Avoid airtight containers.
  - ✓ Light: Exposure to light can accelerate the staling process. Use opaque packaging or minimize light exposure.
- **Labelling of fried pastries**
  - ✓ **Labelling** refers to the process of providing information about the ingredients, nutritional value, and other relevant details of a fried pastry product on its

packaging. This information is essential for consumers to make informed decisions about the food they consume.

- ✓ **Identification of labelling types**
  - **Indirect labelling (applied) is** labelling when all information is pointed on the paper, which is applied on the package.
  - **Direct Labelling** is labelling when all the information is pointed on the package.
- ✓ **Identification of labelling requirement**
  - Name of manufacturer
  - Net quantity/weight
  - Manufacturing date and Expiry date
  - Batch number
  - Trade mark
  - list of ingredients
  - Nutritional information
  - Storage condition
  - Direction of use/instruction of use
  - Product name

- **Packaging Procedures for Doughnuts**

Packaging doughnuts is an essential step to maintain their freshness and quality. The packaging process involves several key procedures to ensure that the doughnuts are protected, preserved during storage and transportation.

- **Selection of Packaging Materials:** The first step in packaging doughnuts is the selection of appropriate packaging materials. Commonly used materials include cardboard boxes, plastic containers, and cellophane bags. These materials should be food-grade and designed to maintain the texture and flavor of the doughnuts.
- **Handling and Placement:** Once the doughnuts are prepared, they need to be carefully handled and placed in the chosen packaging material. It's important to ensure that the doughnuts are arranged in a way that minimizes movement and prevents them from getting squashed or damaged during transit.
- **Sealing:** After the doughnuts are placed in the packaging, they need to be sealed properly to prevent exposure to air and moisture. This can be achieved through heat-sealing machines for plastic bags or using adhesive tape for cardboard boxes.
- **Labeling:** Proper labeling is crucial for packaged doughnuts. Labels should include important information such as the expiration date, ingredients, allergen warnings, and any other relevant details for consumers.
- **Storage and Transportation:** Once packaged, the doughnuts should be stored in a suitable environment that maintains their freshness. Temperature-

controlled storage facilities are ideal for preserving the quality of the doughnuts during transportation and distribution.

- **Packaging Procedures for Chapatti**

  Similar to doughnuts, chapattis also require careful packaging to ensure their quality and freshness are maintained.

  - **Packaging Material Selection:** The choice of packaging material is critical for chapattis. Common options include food-grade plastic wraps or aluminum foil, which help preserve the texture and prevent moisture loss.
  - **Wrapping Technique:** Chapattis are typically stacked together and then wrapped tightly with the chosen packaging material to prevent them from drying out or becoming stale.
  - **Sealing:** If using plastic wraps, proper sealing is essential to maintain the chapattis' freshness. The wraps should be securely sealed to prevent air exposure.
  - **Labeling:** Labels on chapatti packages should include information such as the date of production, ingredients used, nutritional facts, and any other relevant details for consumers.
  - **Storage and Distribution:** Packaged chapattis should be stored in a cool, dry place to preserve their quality. During distribution, care should be taken to avoid damage to the packaging that could compromise the integrity of the product.

Points to Remember

- Make sure that packaging area is under hygienic conditions and use clean packages.
- Remember two common types of labelling such as direct labelling and indirect labelling.
- The main information to be presented on labelling include the name of product, name of manufacturer, net quantity/weight, manufacturing date and expiry date, batch number, list of ingredients, nutritional information, storage condition and the instruction of use.

Application of learning 4.2.

You are requested to visit fried pastry making company located around your school and perform packaging of doughnut and chapatti then prepare study visit report.

Indicative content 4.3: Storing of Fried Pastries

Duration: 2 hrs

Practical Activity 4.3.1: Storing of doughnut and Chapatti

Task:

You are requested to go in storage room/workshop and store different packs of doughnut and chapatti then continue to manage the store.

1: Apply safety precaution .

2: Perform storage of doughnut and chapatti.

3: Present the final product to the whole class.

4: For more clarification read key learning 4.3.1

5: Perform the task provided in application of learning 4.3

Key readings 4.3.1: Storing of doughnut and Chapatti

- **Identification Storage condition**

  Storage of fried pastries: Fried pastries should be stored in an airtight container at room temperature for up to two days. If you want to store them for a longer period, you can freeze them for up to three months. To freeze, place the pastries in a single layer on a baking sheet and freeze until solid. Then transfer them to an airtight container or freezer bag and return them to the freezer. When you are ready to eat them, thaw the pastries at room temperature for about 30 minutes and then reheat them in the oven at 350°F for 5-10 minutes until they are crispy again.
- **Storage condition of doughnut and chapatti**
  - Fried pastry usually kept to a relative humidity of approximately 50% to 55% humidity under room temperature.
  - Keeping the temperature and humidity within a stable range minimizes the risk of moisture buildup. They should be stored in the area that's cool, dark, and dry.
  - After cooling, doughnuts packed into paper package and store at room temperature for 2-3 days.
  - The doughnut has a shelf life of 2-5 days depending on the type of product and the storage condition.
- **Perform Storage management**
  - ✓ **LIFO: last in last out**

The Last-In, First-Out (LIFO) method assumes that the last unit to arrive in inventory or more recent is sold first.

✓ **FIFO: first in first out**

The First-In, First-Out (FIFO) method assumes that the oldest unit of inventory is the sold first. FIFO, which stands for First-In-First-Out, is a method of inventory management that ensures that the first items added to a stock are the first ones to be sold or used. This method is particularly useful in managing the store of fried pastries, as it helps to ensure that the oldest pastries are sold first, reducing waste and ensuring customer satisfaction.

To apply FIFO in managing a store of fried pastries, there are several steps can be taken.

- It is important to label each batch of pastries with the date and time they were made. This will help to ensure that the oldest pastries identified and firstly used.
- It is important to organize the pastries in the store so that the oldest ones are at the front of the display case or on top of the stack. This will make it easier for staff to identify which pastries need to be sold first.
- When restocking the store, it is important to place new batches of pastries behind the older ones. This will ensure that the older pastries are used first before they expire.
- It is important to regularly check the store for expired or stale pastries and remove them from the display case. This will help to ensure that customers are only purchasing fresh and delicious pastries.

✓ **The benefits of FIFO method**

- Increase the storage space
- Storage operations are more streamlined.
- Keeps stock handling to a minimum
- Enhanced quality control.
- Warranty control for the products

- **Factors Leading to Quick Spoilage in Fried Pastry**

  Fried pastries, with their high fat content and often delicate nature, are particularly susceptible to spoilage. Several factors can accelerate this process:

  ✓ **Environmental Factors**

  - **Temperature:** High temperatures encourage the growth of bacteria and mold.
  - **Humidity: Moist environments promote microbial growth.**
  - **Light: Exposure to light can accelerate oxidation and degrade the pastry's quality.**
  - **Oxygen: Contact with oxygen can lead to staleness and rancidity.**

✓ **Microbiological Factors**

- **Bacteria:** Various bacteria can contaminate fried pastries, causing spoilage.
- **Mold:** Fungi can grow on the pastry, leading to visible and undesirable changes.
- **Yeast:** In some cases, yeast can cause the pastry to become stale or develop an off-flavor.

✓ **Packaging Factors**

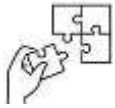
- **Improper Sealing:** Inadequate sealing allows moisture, oxygen, and contaminants to enter.
- **Material Quality:** Low-quality packaging materials may not provide sufficient protection.
- **Contamination:** Packaging materials that are not properly cleaned can introduce contaminants.

✓ **Handling and Storage**

- **Improper Handling:** Contact with unclean hands or surfaces can introduce bacteria.
- **Incorrect Storage:** Storing pastries at incorrect temperatures or in unsuitable containers can accelerate spoilage.

Points to Remember

- Store doughnut and chapatti but don't exceed the expired date of those products.
- Monitor each factors that can affect the quality of doughnut and chapatti because they are susceptible to deterioration.
- Storage condition of doughnut and chapatti to relative humidity range from 50% to 55% and stored in area of cool, dark and dry place.
- FIFO is better than LIFO then FIFO stands for "first in first out" assumes that the oldest unit of inventory is the sold first.



Application of learning 4.3.

You are requested to visit fried pastry making company located around your school and store packaged doughnut and chapatti then monitor the storage conditions and prepare study visit report.

Learning outcome 4 end assessment

Theoretical assessment

1. In the following information, **encircle** all possible information required on label of doughnut.
   a) List of ingredient
   b) Allergic content
   c) Processing procedures
   d) Storage condition
   e) Concentration of doughnut
   f) Size of doughnut pieces
2. Answer by **true** if statements are correct or **false** if statements are incorrect.
   a) Doughnut are store in cool place dry with direct sunlight
   b) Doughnut are stored at room temperature in dry place away of direct sunlight
   c) To preserve doughnut in long time must store if freezing temperature.
3. Those are the factors to consider while selecting packaging materials for fried pastries **except:**
   a) Should be non-toxic
   b) Prevent contamination
   c) Act as moisture loss or gain and oxygen entrance.
   d) Light weight
   e) Durability
4. From the table below, match the following types of labelling with their meaning by writing the letter with the corresponding digit in the provided space.

ANSWER	Column A	Column B
……	2. **Indirect labelling**	A. It is types of labelling when all the information is pointed on the package.
……	3. **Direct Labelling**	B. It is labelling when all information is pointed on the package, which is applied on the package

……..		C. It is labelling when all information is pointed on the paper, which is applied on the package.

5. Fill in the blanks of the following sentences using the given words(secondary packaging, Labelling, Aluminum foil, Primary packaging, Packaging,)

a) ……..is to surround or wrap fried products with suitable protective material for distribution, storage, sale, and use.

b) ……refers to the process of providing information about the ingredients, nutritional value, and other relevant details of a fried pastry product on its packaging.

c) ……consists of packaging food product in primary or sales packaging material i. e. packaging conceived to constitute a sales unit to the final user.

d) ……Offers an excellent barrier against moisture, oxygen, and light, used for wrapping pastries.

Practical assessment

NIYO bakery Ltd located in NYARUGENGE district, produce different pastry products. They have the following challenges such as: doughnut are spoiled without passing 3 days, packaging material are damaged easily, customers don't differentiate with other products on the market and also the rest doughnut and chapatti start contaminate and spoil. Bakery manager highlight you as skilled and knowledgeable in fried pastry making to overcome those challenges.

TASK:

- Package doughnut and chapatti
- Label the packaged doughnut and chapatti
- Store doughnut and chapatti and monitor storage conditions

END

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