

Syllabus for Bakery Products Maker

Course Name	Bakery Products Maker
Sector	Food Processing
Course Code	FPT/2024/BAPM/414
Level	4
Occupation	Bakery Products Maker and Equipment Operator
Job Description	A Bakery Products Maker typically works in a bakery, pastry shop, confectionery factory, or food production facility where baked goods items are manufactured. They assist in various stages of the production process, including ingredient preparation, dough/batter mixing, baking, decorating, packaging, and cleaning. This role is essential for ensuring the smooth operation of the production line and the consistent quality of the products. The Bakery Products Maker works under the supervision of bakers, pastry chefs, or production managers, following recipes and procedures to create a variety of baked goods and confectionery treats.
Course Duration	Total Duration 480 Hrs (T-120, P- 240, OJT-60 and ES-60)
Trainees' Entry Qualification	Grade 10 OR Grade 8 with two year of (NTC/ NAC) after 8 th OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject OR 8th grade pass with 2 yrs relevant experience OR Previous relevant Qualification of NSQF Level 2 with one yr experience OR Previous relevant Qualification of NSQF Level 2.5 with 6 months experience
Trainers Qualification	Degree in Hotel Management/ Catering Technology/ Food Technology with one-year experience in the relevant field. OR Diploma in Hotel Management/ Catering Technology/ Food Technology from a recognized board with two-year experience in the relevant field. OR NTC/NAC passed in the trade of "Baker & Confectioner" with three year experience in the relevant field

Structure of Course:

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	OJT (Hrs.)	Total (Hrs) [Multiple of 30]
1	Bakery Ingredients and Formulation	Select and formulate various ingredients required in different Bakery products manufacturing process	10	20		30
2	Equipment and	Operate various	20	40		60

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	OJT (Hrs.)	Total (Hrs) [Multiple of 30]
	machinery in Bakery Industry	Equipment and machinery used in Bakery Industry				
3	Production of Bread	Perform production of bread using various Equipment and machinery	10	20		30
4	Production of Cake and Pastry	Perform production of Cake and Pastry using various Equipment and machinery as per the requirements	20	40		60
5	Production of Biscuits, Cookies and Crackers	Perform production of Biscuits, Cookies and Crackers using various Equipment and machinery	20	40		60
6	Production of Miscellaneous Bakery Products	Perform production of Miscellaneous Bakery Products using various Equipment and machinery	20	40		60
7	Finished baked Products packaging and labelling	Conduct manual/automatic packaging/labelling operation of Finished baked Products	10	20		30
8	Food safety, hygiene and sanitation maintain in bakery units	Implement Food safety hygiene and sanitation practices at bakery products manufacturing process	10	20		30
9	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	-	-	60	60
10	Employability Skill	As per NCVET guided curriculum	60	-	-	60
TOTAL			180	240	60	480

SYLLABUS:**Module 1: Bakery Ingredients and Formulation**

Outcome: Select and formulate various ingredients required in different Bakery products manufacturing process

Theory Content:

- 1.1 Classify bakery products and Bakery ingredients
- 1.2 Illustrate the role of ingredients -such as wheat flour, Sugar, shortening – Fats and oil, Milk and milk products, Salt, spices and flavouring agent, Yeast, leavening agent, Eggs, Fruits and nuts Emulsifier, Water, Bread improvers and cake improver, Moistening agent, Preservative.
- 1.2 Elaborate Proximate composition of wheat flour
- 1.3 Explain Mechanism of Gluten development.
- 1.4 Classify yeast (Cream yeast, compressed yeast, dry yeast, instant dry yeast)
- 1.5 Explain Characteristics of good fresh yeast.
- 1.6 Illustrate roll of yeast during fermentation of dough and conditions influencing it's working.
- 1.7 Describe methods and function of Mechanical, Chemical and water vapour pressure leavening agents (mechanical method-creaming method, beating eggs method, chemical method by release of CO₂ - baking soda or sodium bicarbonate).
- 1.8 Categorize baking powder (fast action, slow action, double action),
- 1.9 Outline composition of baking powder (tartrate powder-leavening acids components, cream of tartar, mono potassium salt of tartaric acid, phosphate powder-sodium acid pyrophosphate monocalcium phosphate)
- 1.10 Describe types and function of Emulsifiers (GMS, lecithin, gel)
- 1.11 Describe types and function of dough improver (chemical improvers- potassium bromate, potassium iodate, potassium and ammonium sulphate, ammonium chloride, Ca, Na, K acid phosphate, ascorbic acid, lactic acid, natural improvers- milk, malt, eggs, sugar, fat, soya flour).

Practical Content:

- 1.1 Identify Major and minor ingredients used in Bakery items.
- 1.2 Identify different grades of wheat flours.
- 1.3 Detect Proximate composition of wheat flour
- 1.4 Analyze quality of wheat flour (Appearance, odour, colour, taste, moisture, total ash, acid insoluble ash, pH, sedimentation value of flour, alcoholic acidity, Water absorption power of flour, wet gluten, dry gluten, granularity test, amylase activity).
- 1.5 Demonstrate Gluten development process using wheat flour.
- 1.6 Analyze Quality of water used in bakery industry.
- 1.7 Identify dough improver (chemical improvers- potassium bromate, potassium iodate, potassium and ammonium sulphate, ammonium chloride, Ca, Na, K acid phosphate, ascorbic acid, lactic acid,) and natural improvers- (milk, malt, eggs, sugar, fat, soya flour).
- 1.8 Identify dough conditioner (oxidizing agent, reducing agent).
- 1.9 Identify impurities of water used in bakery industry.
- 1.10 Convert baker's percent to formula percent of bakery ingredients.

Module 2: Equipment and machinery in Bakery Industry

Outcome: Operate various Equipment and machinery used in Bakery Industry

Theory Content:

2.1 Categorize Equipment and machinery used in Bakery Industries (Measuring Tools, Preparatory Tools, Weighing Balance, Mixing Tools, Cutting Tools, Dough-Handling Equipment, Baking Ovens, Baking Pans and Tools, Bulk Handling Equipment)

2.2 Describe various equipment used in icing method (Piping bags, Nozzles, Platte knife, etc).

2.3 Illustrate working principle of High-speed Sigma mixer, Planetary Mixer, spiral mixer, low speed rotary kneader, twin arm kneader, continuous mixer.

2.4 Explain performance of Equipment and machinery used in bread making -Bulk fermenter cum retarder, Dough Divider (rotary divider, Ram/knife divider), dough rounder, intermediate proofer, Dough moulder, dough Proofer, automatic panning.

2.5 Outline working principle of Sheeter, Laminator, sheeting and cutting machine, rotaty moulding equipment, extruder equipment (wire-cut machine, bar/rout press), deposit cookies equipment.

2.6 Elaborate Working principle of different types of Baking Ovens (deck oven, Rotary Rack Oven, Convection Ovens, reel oven, Tunnel Ovens), Cooling Cabinet, Slicer, enrober, packaging machine.

Practical Content:

2.1 Identify Equipment and machinery used in Bakery Industries (Measuring Tools, Preparatory Tools, Weighing Balance, Mixing Tools, Cutting Tools, Dough-Handling Equipment, Baking Ovens, Baking Pans and Tools, Bulk Handling Equipment)

2.2 Demonstrate working principle of High-speed Sigma mixer, Planetary Mixer, spiral mixer, low speed rotary kneader, twin arm kneader, continuous mixer.

2.3 Operate Bulk fermenter cum retarder, Dough Divider (rotary divider, Ram/knife divider), dough rounder, intermediate proofer, Dough moulder, dough Proofer, automatic panning used in bread making.

2.4 Demonstrate working principle of Sheeter, Laminator, sheeting and cutting machine, rotaty moulding equipment, extruder equipment (wire-cut machine, bar/rout press), deposit cookies equipment.

2.5 Operate different types of Baking Ovens (deck oven, Rotary Rack Oven, Convection Ovens, reel oven, Tunnel Ovens), Cooling Cabinet, Slicer, enrober, packaging machine.

2.6 Conduct icing method for decoration of cake (Piping bags, Nozzles, Platte knife, etc).

Module 3: Production of Bread

Outcome: Perform production of bread using various Equipment and machinery

Theory Content:

3.1 Highlight Bread making ingredients - additives - leavening agent.

3.2 Categorize different types of bread

3.3 Describe Dough make up process- dividing, rounding, intermediate proofing time and temperature, moulding (hand moulding, machine moulding- sheeting, curling, sealing), panning (tempering of pan, greasing/glazing of pan), Final proofing condition.

3.4 Explain Physical and chemical changes occurring during baking of bread (Oven spring and oven rise, yeast activity, enzyme activity, starch gelatinization, protein denaturation, protein coagulation, caramelization and maillard reaction)

3.5 Describe the purpose of cooling before packaging,

3.6 Describe slicing, wrapping and packaging of bread.

3.7 Identify different quality parameters of bread External characteristics; (Volume, symmetry of shapes) Internal characteristics – (color, texture, aroma, clarity and elasticity).

3.8 Identify External bread faults, Internal bread faults, causes of staling of bread (crust staling, crumb staling).

3.9 Explain the cause of bread diseases/spoilage and remedies.

Practical Content:

3.1 Identify ingredients required in bread making.

3.2 Demonstrate the straight dough method and sponge dough method of bread production.

3.3 Conduct mixing of bread ingredients maintaining proper mixing stage and mixing time.

3.4 Detect over mixed dough and under mixed dough.

3.5 Demonstrate Dough make up process- dividing, rounding, intermediate proofing time and temperature, moulding (hand moulding, machine moulding- sheeting, curling, sealing), panning (tempering of pan, greasing/glazing of pan), Final proofing condition.

3.6 Conduct Final baking process of dough maintaining proper bread baking time and temperature.

3.7 Conduct cooling of bread before packaging.

3.8 Demonstrate slicing, wrapping and packaging of bread.

3.9 Detect External bread faults, Internal bread faults, causes of staling of bread (crust staling, crumb staling).

3.10 Identify cause of bread diseases/spoilage.

Module 4 : Production of Cake and Pastry

Outcome: Perform production of Cake and Pastry using various Equipment and machinery as per the requirements

Theory Content:

4.1 Classify cake variety.

4.2 Highlight Ingredients used in cake making- flour, sugar, shortening-fats and oil, egg, moistening agent, leavening agents, cake improvers.

4.3 Formulate of cake recipe of rich formula, lean formula, high ratio cake, low ratio cake.

4.4 Describe different types of Cake making methods – creaming method, whisking method, flour batter method, sugar batter method, blending and rubbing method, boiled method, sugar water method, all in one method.

4.5 Outline detail flow diagram of cake making process in sugar batter method and flour batter method.

4.6 Describe Secondary processing of cake with example only (automatic injection moulding machine, and sandwiching cream or layering cream of cake, Chocolate enrobing of cake).

4.7 Explain Characteristic of cakes- external characteristics and internal characteristics of cake.

4.8 Highlight Common faults of Cake,

4.9 Explain cause of faults of cake and remedies.

4.10 Outline different parameters for quality checking of cake.

4.11 Describe the method of Cake dressings-decoration-icings and different types of toppings.

4.12 Elaborate Preparation method of Fondant, Butter Cream, Royal Icing.

4.13 Classify different types of Pastry.

4.14 Highlight different Ingredients required for manufacturing of Pastry.

4.15 Describe the Manufacturing process of – short crust pastry, flaky pastry, puff pastry, choux pastry.

4.16 Explain Characteristics of good Pastry (Internal/External characters).

4.17 Highlight Common faults of Pastry (lack of volume, shrinkage of crust, topping over, irregular shape, fat seepage).

4.18 Explain cause of faults of pastry and remedies.

Practical Content:

- 4.1 Identify Ingredients used in cake making- flour, sugar, shortening-fats and oil, egg, moistening agent, leavening agents, cake improvers.
- 4.2 Prepared cake recipe of rich formula, lean formula, high ratio cake, low ratio cake.
- 4.3 Demonstrate different types of Cake making methods –flour batter method, sugar batter method, blending and rubbing method, boiled method, sugar water method, all in one method.
- 4.4 Demonstrate operation of automatic injection moulding machine in cupcake preparation.
- 4.5 Demonstrate sandwiching cream or layering cream of cake, Chocolate enrobing of cake).
- 4.6 Examine external characteristics and internal characteristics of cake
- 4.7 Detect External and Internal cake faults.
- 4.8 Identify cause of faults of cake
- 4.9 Apply remedial measure to prevent and control of faults of cake.
- 4.10 Check different parameters for of cake quality.
- 4.11 Demonstrate different types of Cake dressings-decoration-icings and toppings method.
- 4.12 Demonstrate Preparation method of Fondant, Butter Cream, Royal Icing.
- 4.13 Identify different Ingredients required for manufacturing of Pastry.
- 4.14 Demonstrate Manufacturing process of – short crust pastry, flaky pastry, puff pastry, choux pastry.
- 4.15 Detect External and Internal Pastry faults.
- 4.16 Identify cause of faults of Pastry.
- 4.17 Apply remedial measure to prevent and control of faults of Pastry.

Module 5: Production of Biscuits, Cookies and Crackers

Outcome: Perform production of Biscuits, Cookies and Crackers using various Equipment and machinery

Theory Content:

- 5.1 Classify Biscuits based on ingredients (semi sweet types- thin arrowroot, marie nutritional, sweet types- coconut, milkose, butter bite, kaju butter bite, cream types- chocolate cream, orange cream, eliachi cream, milk cream, lemon puff, salty snacks types, sweet snacks types, zeera top snacks types, sugar coated icing types)
- 5.2 Classify of Biscuits based on method of processing (laminating, sheeting, cutting types, sheeting and cutting types, rotary moulding types, extrusion and co-extrusion types, depositing types).
- 5.3 Categorize biscuit dough (Hard Dough, Short dough, Fermented dough Biscuits).
- 5.4 Highlight different Ingredients required for Manufacturing of Biscuit.
- 5.5 Describe general steps for Biscuit making.
- 5.6 Categorize types of crackers (graham crackers, cream crackers, soda crackers, snack crackers).
- 5.7 Explain Characteristics of good Biscuit and crackers (Internal/External characters).
- 5.8 identify the Common faults of Biscuit and crackers.
- 5.9 Explain cause of faults and remedies for Biscuit and crackers making.
- 5.10 Highlight Different Ingredients required for manufacturing of Cookies.
- 5.11 Classify Cookies according to mixing method- batter type cookies (drop/short cookies, stiff batter cookies, short bread cookies), Foam type cookies (meringue cookies, sponge cookies).
- 5.12 Classify Cookies according to basic machine used for production (deposit cookies, wire cut Cookies, bar type Cookies, cutting machine Cookies, rotary moulded Cookies)
- 5.13 Describe General steps for Cookies making – mixing of cookies doughs (single stage method, creaming method, blending method), formation of different shape Cookies from dough, cookies baking, time and temperature for baking.
- 5.14 Describe the Common faults of Cookies.

5.16 Explain cause of faults and remedies for cookies making.

Practical Content:

5.1 Identify Different types of Biscuits (semi sweet types- thin arrowroot, marie nutritional, sweet types- coconut, milkose, butter bite, kaju butter bite, cream types- chocolate cream, orange cream, eliachi cream, milk cream, lemon puff, salty snacks types, sweet snacks types, zeera top snacks types, sugar coated icing types)

5.2 Display different Ingredients required for Manufacturing of Biscuit.

5.4 Display general steps for Biscuit making.

5.5 Demonstrate method of mixing of hard sweet doughs, mixing of short and soft dough, continuous mixing of biscuit doughs.

5.6 Demonstrate formation of biscuit shaped dough pieces using sheeting, laminating and cutting method, rotaty moulding method, wire-cutting method.

5.7 Demonstrate biscuit baking process through monitoring of time and temperature for baking.

5.8 Identify changes occurring during cooling of baked biscuits (changes in texture during cooling, changes in moisture distribution within the products).

5.9 Demonstrate preparation of sandwiching cream biscuit, chocolate coating/enrobing types biscuit, chocolate moulding, sugar coated icing types biscuit.

5.10 Identify graham crackers, cream crackers, soda crackers, snack crackers.

5.11 Demonstrate Manufacturing process of cream crackers and soda crackers, mixing and fermentation of cracker doughs.

5.12 Measure Different Ingredients required for manufacturing of Cookies.

5.13 Identify Cookies according to mixing method- batter type cookies (drop/short cookies, stiff batter cookies, short bread cookies), Foam type cookies (meringue cookies, sponge cookies).

5.14 Conduct mixing of cookies doughs (single stage method, creaming method, blending method).

5.15 Conduct formation of different shape Cookies from dough.

5.16 Demonstrate cookies baking process by monitoring time and temperature for baking.

5.17 Identify Characteristics of good Cookies (Internal/External characters).

5.18 Identify Common faults of Cookies.

5.19 Detect cause of faults and remedies for cookies making.

Module 6 : Production of Miscellaneous Bakery Products

Outcome: Perform production of Miscellaneous Bakery Products using various Equipment and machinery

Theory Content:

6.1 Highlight Different Ingredients required for manufacturing of rusks.

6.2 Describe General steps for rusks making.

6.3 Highlight Different Ingredients required for manufacturing of buns.

6.4 Describe General steps for bans making.

6.5 Highlight Different Ingredients required for manufacturing of Croissants.

6.6 Describe General steps for Croissants making.

6.7 Highlight Different Ingredients required for manufacturing of muffins.

6.8 Describe General steps for muffins making.

6.9 Highlight Different Ingredients required for manufacturing of Wafers.

6.10 Describe General steps for Wafers making.

6.11 Highlight Different Ingredients required for manufacturing of Pizza.

- 6.12 Describe General steps for Pizza making.
- 6.13 Highlight Different Ingredients required for manufacturing of doughnuts.
- 6.14 Describe manufacturing flowchart of producing cake doughnuts and yeast-raised doughnuts.

Practical Content:

- 6.1 Identify Different Ingredients required for manufacturing of rusks.
- 6.2 Demonstrate General steps for rusks making.
- 6.3 Identify Different Ingredients required for manufacturing of buns.
- 6.4 Demonstrate General steps for bans making.
- 6.5 Identify Different Ingredients required for manufacturing of Croissants.
- 6.6 Demonstrate General steps for Croissants making.
- 6.7 Identify Different Ingredients required for manufacturing of muffins.
- 6.8 Demonstrate General steps for muffins making.
- 6.9 Identify Different Ingredients required for manufacturing of Wafers.
- 6.10 Demonstrate General steps for Wafers making.
- 6.11 Identify Different Ingredients required for manufacturing of Pizza.
- 6.12 Demonstrate General steps for Pizza making.
- 6.13 Identify Different Ingredients required for manufacturing of doughnuts.
- 6.14 Demonstrate manufacturing flowchart of producing cake doughnuts and yeast-raised doughnuts.

Module 7: Finished baked Products packaging and labelling

Outcome: Conduct manual/automatic packaging/labelling operation of Finished baked Products

Theory Content:

- 7.1 Discuss the basic functions of packaging; Different forms of packaging - Rigid, semirigid and flexible, Primary, secondary and tertiary;
- 7.2 Explain Primary Packaging Materials (Paper and paper-based packaging materials, Aluminium foil, Plastic as packaging materials)
- 7.3 Explain Secondary Packaging Material (Folding carton).
- 7.4 Describe Ancillary Packaging Materials (Printing inks, varnishes, and adhesives).
- 7.5 Discuss on Different types of packaging materials – Boxes: [Cardboard boxes are commonly used for packaging larger baked goods like cakes, pies, and pastries], Bags: [Polyethylene bags or paper bags are suitable for packaging smaller items like cookies, brownies, or bread slices], Wrapping Paper: [Waxed paper or parchment paper can be used for wrapping individual items like muffins or sandwiches], Containers: [Plastic containers with lids are ideal for packaging delicate items like decorated cookies or cupcakes], Tins: [Metal tins are great for packaging items like biscuits or holiday cookies], Cellophane: [Cellophane wraps can add a professional touch to your packaging and are commonly used for gift baskets or specialty items]
- 7.6 Discuss on Cellulosic and Polymeric packaging materials and forms: Food grade polymeric packaging materials, Rigid plastic packages. Films: Multilayer films, Laminates and Metalized film.
- 7.7 Discuss on Polymeric materials, their mechanical sealing and barrier properties: Cellophane, Olefins, Polyamides, Polyesters, PVC, PVDC, PVA, Copolymers, Polycarbonates.
- 7.8 Discuss on Packaging equipments –Sealing machine, Heat Sealer, Packaging Tape, Shrink Wrap Machine, labelling equipments.

Practical Content:

- 7.1 Identify appropriate primary and secondary packaging material for specific bakery products.
- 7.2 Load packing materials in packaging machine and set packing quantity, set date coding machine for date code details like batch number, date of manufacture, date of expiry etc
- 7.3 Start automatic packaging machine to accurately measure baked products and ensure consistent portion sizes for packaged products and seal measured quantity of finished products.
- 7.4 Check weight of packed product periodically to ensure its conformance to standards.
- 7.5 Sample packed product and transfer to quality lab for analysis and to ensure its conformance to quality Standards.
- 7.6 Place packed and labelled products in cartons/other secondary packaging material and seal, transfer to storage area and store.
- 7.7 Clean the packaging area, packaging machineries, equipment and tools using recommended cleaning agents and sanitizers.
- 7.8 Document and maintain records on the finished products details like batch number, time of packing, date of manufacture, date of expiry, other label details, primary, secondary and tertiary packaging materials for all finished products, storage conditions etc, as per organization standards.

Module Name: Food safety, hygiene and sanitation maintain in bakery units**Outcome: Implement Food safety hygiene and sanitation practices at bakery products manufacturing process****Theory Content:**

- 8.1 State Principles of Food Hygiene- Objectives · Scope, use and definitions
- 8.2 Define the terms food safety, food poisoning, food-borne illness, food allergy, contamination, hazard and HACCP.
- 8.3 Discuss on Food safety issues and strategies [concept of food safety and standards (FSSAI)], factors affecting food safety, importance of safe foods, factors affecting shelf life and methods to check the shelf life.
- 8.4 Describe GMP, GHP, HACCP, GAP, ISO Series (9000, 22000, 14000 & 17025.) applicable to bakery industry.
- 8.5 Outline personal hygiene of food handlers.
- 8.6 Explain Method of cleaning and disinfection by using Detergents and Sanitizer-Sanitation in working area. cleaning compounds, sanitation methods, waste disposal strategy (solid and liquid waste).

Practical Content:

- 8.1 Apply HACCP principle in every bakery product.

- 8.2 Demonstrate Food safety issues and strategies [concept of food safety and standards (FSSAI)] related to bakery products.
- 8.3 Identify factors affecting shelf life and check the shelf life of bakery products.
- 8.4 Identify Factors contributing to physical, chemical and biological contamination in bakery products.
- 8.5 Use soap and warm water for washing hands thoroughly before starting work.
- 8.6 Use hairnet to prevent hair from falling into the food during working .
- 8.7 Conduct cleaning and sanitizing of all equipment and surfaces in the bakery, including countertops, mixing bowls, and utensils, regularly to prevent cross-contamination.
- 8.8 Use hot, soapy water to clean equipment and surfaces, followed by a sanitizing solution of bleach and water or a commercial sanitizer.
- 8.9 Check ingredients for signs of spoilage, such as mold or off-odors, before using them in production.
- 8.10 Monitor and control temperatures throughout the baking process to prevent the growth of harmful bacteria.
- 8.11 Keep perishable ingredients refrigerated at the appropriate temperature to maintain freshness and safety.
- 8.12 Ensure that baked goods are properly cooled before packaging to prevent condensation and mold growth.
- 8.13 Clearly label all products containing common allergens, such as nuts, dairy, and wheat, to alert customers with food allergies.
- 8.14 Implement a pest control program to prevent infestations of rodents, insects, and other pests.
- 8.15 Keep the bakery clean and free of crumbs and spills that could attract pests.
- 8.16 Apply waste disposal strategy (solid and liquid waste) generated during production of bakery products

Module 9 : OJT

Outcome: Work in real job situation with special emphasis on basic safety and hazards in this domain

Practical Content:

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for **60 Hours**.)

Module 10 : Employability Skills (60 Hrs)

Key Learning Outcomes

Introduction to Employability Skills

Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship

Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty,

integrity, caring and respecting others that are required to become a responsible citizen

4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century

Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

Basic English Skills

Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

Career Development & Goal Setting

Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills

Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion

Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy

Duration: 5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills

Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship

Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

Customer Service

Duration: 5 Hours

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs

Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

Learning Outcome – Assessment Criteria

Module No.	Outcome	Assessment Criteria
1	Select and formulate various ingredients required in different Bakery products manufacturing process	<p>After completion of this module students will be able to:</p> <p>1.1 Identify Major and minor ingredients used in Bakery items.</p> <p>1.2 Identify different grades of wheat flours.</p> <p>1.3 Demonstrate mechanical method-creaming method, beating eggs method of leavening.</p> <p>1.4 Measure the activity of baking powder (fast action, slow action, double action),</p> <p>1.5 Identify dough improver (chemical improvers- and natural improvers</p> <p>1.6 Identify impurities of water used in bakery industry.</p> <p>1.7 Calculate baker's percent, formula percent of bakery ingredients.</p>
2	Operate various Equipment and machinery used in Bakery Industry	<p>After completion of this module students will be able to:</p> <p>2.1 Identify Equipment and machinery used in Bakery Industries (Measuring Tools, Preparatory Tools, Weighing Balance, Mixing Tools, Cutting Tools, Dough-Handling Equipment, Baking Ovens, Baking Pans and Tools, Bulk Handling Equipment)</p> <p>2.2 Identify the working principle of High-speed</p>

Module No.	Outcome	Assessment Criteria
		<p>Sigma mixer, Planetary Mixer, spiral mixer, low speed rotary kneader, twin arm kneader, continuous mixer.</p> <p>2.3 Demonstrate operation of Bulk fermenter cum retarder, Dough Divider (rotary divider, Ram/knife divider), dough rounder, intermediate proofer, Dough moulder, dough Proofer, automatic panning used in bread making.</p> <p>2.4 Demonstrate Working principle of different types of Baking Ovens (deck oven, Rotary Rack Oven, Convection Ovens, reel oven, Tunnel Ovens), Cooling Cabinet, Slicer, enrober, packaging machine.</p> <p>2.6 Conduct icing method for decoration of cake (Piping bags, Nozzles, Platte knife, etc).</p>
3	Perform production of bread using various Equipment and machinery	<p>After completion of this module students will be able to:</p> <p>3.1 Identify ingredients required in bread making.</p> <p>3.2 Conduct mixing of bread ingredients maintaining proper mixing stage and mixing time.</p> <p>3.3 Conduct Final baking process of dough maintaining proper bread baking time and temperature.</p> <p>3.4 Conduct cooling of bread before packaging.</p> <p>3.5 Demonstrate slicing, wrapping and packaging of bread.</p> <p>3.6 Examine bread External characteristics; (Volume, symmetry of shapes) and Internal characteristics – (color, texture, aroma, clarity and elasticity).</p> <p>3.7 Detect External bread faults, Internal bread faults, causes of staling of bread (crust staling, crumb staling).</p> <p>3.8 Identify cause of bread diseases/spoilage.</p>
4	Perform production of Cake and Pastry using various Equipment and machinery as per the requirements	<p>After completion of this module students will be able to:</p> <p>4.1 Identify Ingredients used in cake making- flour, sugar, shortening-fats and oil, egg, moistening agent, leavening agents, cake improvers.</p> <p>4.2</p> <p>4.3 Demonstrate different types of Cake making methods –flour batter method, sugar batter method, blending and rubbing method, boiled method, sugar water method, all in one method.</p> <p>4.4 Identify cause of faults of cake</p> <p>4.5 Apply remedial measure to prevent and control of faults of cake.</p> <p>4.6 Demonstrate different types of Cake dressings-decoration-icings and toppings method.</p> <p>4.7 Demonstrate Preparation method of Fondant, Butter Cream, Royal Icing.</p>

Module No.	Outcome	Assessment Criteria
		<p>4.8 Identify different Ingredients required for manufacturing of Pastry.</p> <p>4.9 Demonstrate Manufacturing process of – short crust pastry, flaky pastry, puff pastry, choux pastry.</p> <p>4.10 Identify cause of faults of Pastry.</p>
5	Perform production of Biscuits, Cookies and Crackers using various Equipment and machinery	<p>After completion of this module students will be able to:</p> <p>5.1 Identify different Ingredients required for Manufacturing of Biscuit.</p> <p>5.2 Describe general steps for Biscuit making.</p> <p>5.3 Demonstrate biscuit baking process through monitoring of time and temperature for baking.</p> <p>5.4 Identify changes occurring during cooling of baked biscuits (changes in texture during cooling, changes in moisture distribution within the products).</p> <p>5.5 Identify graham crackers, cream crackers, soda crackers, snack crackers.</p> <p>5.6 Demonstrate Manufacturing process of cream crackers and soda crackers, mixing and fermentation of cracker doughs.</p> <p>5.7 Measure Different Ingredients required for manufacturing of Cookies.</p> <p>5.8 Conduct mixing of cookies doughs (single stage method, creaming method, blending method).</p> <p>5.9 Conduct formation of different shape Cookies from dough.</p> <p>5.10 Demonstrate cookies baking process by monitoring time and temperature for baking.</p> <p>5.11 Identify Characteristics of good Cookies (Internal/External characters).</p> <p>5.12 Identify Common faults of Cookies.</p> <p>5.13 Detect cause of faults and remedies for cookies making.</p>
6	Perform production of Miscellaneous Bakery Products using various Equipment and machinery	<p>After completion of this module students will be able to:</p> <p>6.1 Identify Different Ingredients required for manufacturing of rusks.</p> <p>6.2 Demonstrate General steps for rusks making.</p> <p>6.3 Identify Different Ingredients required for manufacturing of buns.</p> <p>6.4 Demonstrate General steps for bans making.</p> <p>6.5 Identify Different Ingredients required for manufacturing of Croissants.</p> <p>6.6 Demonstrate General steps for Croissants making.</p> <p>6.7 Identify Different Ingredients required for</p>

Module No.	Outcome	Assessment Criteria
		<p>manufacturing of muffins.</p> <p>6.8 Demonstrate General steps for muffins making.</p> <p>6.9 Identify Different Ingredients required for manufacturing of Wafers.</p> <p>6.10 Demonstrate General steps for Wafers making.</p> <p>6.11 Identify Different Ingredients required for manufacturing of Pizza.</p> <p>6.12 Demonstrate General steps for Pizza making.</p> <p>6.13 Identify Different Ingredients required for manufacturing of doughnuts.</p>
7	<p>Conduct manual/automatic packaging/labelling operation of Finished baked Products</p>	<p>After completion of this module students will be able to:</p> <p>7.1 Identify appropriate primary and secondary packaging material for specific bakery products.</p> <p>7.2 Start automatic packaging machine to accurately measure baked</p> <p>7.3 Place packed and labelled products in cartons/other secondary packaging material and seal, transfer to storage area and store.</p> <p>7.4 Clean the packaging area, packaging machineries, equipment and tools using recommended cleaning agents and sanitizers.</p> <p>7.5 Maintain records on the finished products details like batch number, time of packing, date of manufacture, date of expiry.</p>
8	<p>Implement Food safety hygiene and sanitation practices at bakery products manufacturing process</p>	<p>After completion of this module students will be able to:</p> <p>8.1 Demonstrate Food safety issues and strategies [concept of food safety and standards (FSSAI)] related to bakery products.</p> <p>8.2 Identify factors affecting shelf life and check the shelf life of bakery products.</p> <p>8.3 Maintain personal hygiene of food handlers.</p> <p>8.4 Use soap and warm water for washing hands thoroughly before starting work.</p> <p>8.5 Conduct cleaning and sanitizing of all equipment and surfaces in the bakery, including countertops, mixing bowls, and utensils, regularly to prevent cross-contamination.</p> <p>8.6 Store ingredients properly in clean, dry, and well-ventilated areas to prevent contamination and spoilage.</p> <p>8.7 Keep perishable ingredients refrigerated at the appropriate temperature to maintain freshness and safety.</p>

Module No.	Outcome	Assessment Criteria
		8.8 Ensure that baked goods are properly cooled before packaging to prevent condensation and mold growth. 8.9 Keep the bakery clean and free of crumbs and spills that could attract pests. 8.10 Apply waste disposal strategy (solid and liquid waste) generated during production of bakery products
9	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT). (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for 60 Hours.)
10	Employability Skill	As per NCVET guided curriculum

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

Sl No	Items Name	Specification	Qty
1.	Rolling pin 12	Rolling pin 12	3
2.	Table spoons	Table spoons	3
3.	Tea spoon	Tea spoon	3
4.	Forks	Forks	3
5.	Cutting knives	Cutting knives	3
6.	Wooden spoons	Wooden spoons	3
7.	Rolling pins 22"	Rolling pins 22"	3
8.	Sandwich pins 7"	Sandwich pins 7"	3
9.	Check cake tins	Check cake tins	3
10.	Pastry cutters	Pastry cutters	3
11.	Measuring jug	Measuring jug	3
12.	Palette knives	Palette knives	3
13.	Egg beater	Egg beater	3
14.	Cup enamel or glass	Cup enamel or glass	3
15.	Soup plate	Soup plate	3
16.	Plate(large)	Plate(large)	3
17.	Plate (large)	Plate (large)	3
18.	Side plate	Side plate	3
19.	Swiss roll tins	Swiss roll tins	3
20.	Petty tins in sheets of six	Petty tins in sheets of six	3
21.	Small flan tins	Small flan tins	3
22.	Large flan tins	Large flan tins	3
23.	Enamel bowls (5 pints)	Enamel bowls (5 pints)	3
24.	Thales (brass or sheet)	Thales (brass or sheet)	3
25.	Degachis (small)(stainless steel)	Degachis (small)(stainless steel)	3
26.	Flour sieves 7"	Flour sieves 7"	3
27.	Rubbish bowl(basin)	Rubbish bowl(basin)	2
28.	Food cover	Food cover	2

SI No	Items Name	Specification	Qty
29.	Marble slab	Marble slab	2
30.	Measuring spoons	Measuring spoons	1 set
31.	Cake tins 6" Loose bottom	Cake tins 6" Loose bottom	2
32.	Trays for ingredients	Trays for ingredients	2
33.	Graters	Graters	6
34.	Lime squeezer	Lime squeezer	2
35.	Small scale	Small scale	2
36.	Large Scale	Large Scale	2
37.	Palette Knife 18th Bladee for Icing	Palette Knife 18th Bladee for Icing	2
38.	Larger Cutting Knives	Larger Cutting Knives	2
39.	Biscuit Cutters	Biscuit Cutters	24
40.	Boat Tins	Boat Tins	8
41.	Madeline tins	Madeline tins	12
42.	Icing Guns	Icing Guns	3
43.	Cream Horns Tins	cream Horns Tins	2
44.	Large Egg Beaters (wire stings)	Large Egg Beaters (wire stings)	4
45.	Moulds And Nozzles and star Nozzles	Moulds And Nozzles and star Nozzles	6
46.	Moulds & Nozzles for Royal Icing Roses	Moulds & Nozzles for Royal Icing Roses	2
47.	All Types of Nozzles with star shapes	All Types of Nozzles with star shapes	6
48.	Scissors	Scissors	3
49.	Tin Oplener	Tin Oplener	3
50.	Pastry Brushes(Different Sizes)	Pastry Brushes(Different Sizes)	6
51.	Piping Bags	Piping Bags	6
52.	Scoopers	Scoopers	12
53.	Pastry Tongs	Pastry Tongs	6
54.	Cake Collers	Cake Collers	2
55.	Turn Tables	Turn Tables	6
56.	Thermometers	Thermometers	3
57.	Set of Cake Tins 6" Loose Bottom' 8" Loose Bottom' 10" Loose Bottom' 1set 12" Loose Bottom' 3" Loose Bottom'	Set of Cake Tins 6" Loose Bottom' 8" Loose Bottom' 10" Loose Bottom' 1set 12" Loose Bottom' 3" Loose Bottom'	3 sets
58.	Bread Tins	Bread Tins	30
59.	Slab Cake Tins (Size: - 15*11, 10*10, 9*7, 11*9)	Slab Cake Tins (Size: - 15*11, 10*10, 9*7, 11*9)	30
60.	Peelers	Peelers	2
61.	Large Enamel Bowls	Large Enamel Bowls	4
62.	Large Sugar Sleve	Large Sugar Sleve	2
63.	Large Flour Sleve	Large Flour Sleve	2
64.	Small Nut Grinder	Small Nut Grinder	2
65.	Computer	Computer	1
66.	White board,	white board,	1
67.	Marker	marker,	6
68.	Chart papers,	chart papers,	2
69.	Projector,	projector,	1
70.	First aid equipment	first aid equipment	2
71.	Aprons	aprons	30
72.	Head-wear;	; head-wear;	30
73.	Hand gloves	Hand gloves	30 pair

SI No	Items Name	Specification	Qty
74.	Protective boot cover	protective boot cover	30 pair
75.	Protective hand and arm covering	protective hand and arm covering	30
76.	Protective head and; hair cover	protective head and; hair cover	30
77.	Sanitizer	Sanitizer	6
78.	Detergent	detergent	6
79.	Cleaning agent	cleaning agent	6
80.	Gass oven	Gass oven	1
81.	Dekchi,2 lit,SS	Dekchi,2 lit,SS	3
82.	Dekchi,5 lit,SS	Dekchi,5 lit,SS	3
83.	Dekchi,8 lit,SS	Dekchi,8 lit,SS	3
84.	Dekchi,10 lit,SS	Dekchi,10 lit,SS	3
85.	Dekchi,20 lit,SS	Dekchi,20 lit,SS	3
86.	Gamla 2lit SS	Gamla 2lit SS	3
87.	Gamla 3lit SS	Gamla 3lit SS	3
88.	Gamla 5 lit SS	Gamla 5 lit SS	3
89.	Gamla 10lit SS	Gamla 10lit SS	3
90.	Plastic bucket, 9lit	Plastic bucket, 9lit	3
91.	Plastic bucket, 11lit	Plastic bucket, 11lit	3
92.	Plastic bucket, 15lit	Plastic bucket, 15lit	3
93.	Plastic bucket, 20lit	Plastic bucket, 20lit	3
94.	Cooking pan 3 lit	Cooking pan 3 lit	3
95.	Cooking pan 5 lit	Cooking pan 5 lit	3
96.	Cutting knife , small size	Cutting knife , small size	3
97.	Cutting knife , medium size	Cutting knife , medium size	3
98.	Cutting knife , Big size	Cutting knife , Big size	3
99.	Basket plastic, medium size	Basket plastic, medium size	3
100.	Basket plastic, large size	Basket plastic, large size	3
101.	Tray ,plastic, (12''x10'')	Tray ,plastic, (12''x10'')	3
102.	Tray ,plastic, (17''x12'')	Tray ,plastic, (17''x12'')	3
103.	Tray ,plastic, (19''x13'')	Tray ,plastic, (19''x13'')	3
104.	Proofer: for Proving bread before baking	<p>Working table with underneath proofing chamber: Table size – 5ft x 2.5ft x 2.5ft H.</p> <p>Proofing chamber capacity –10 numbers of 304SS AISI trays of size 12 x 18 inches</p> <p>On the top of proofer 20mm thick white polished white marble plate which is used as table cum proofer cabinet. Complete made of SS 304 food graded (inner and outer chamber) with 2 inch insulated wall. Humidity range 80-85% and Temperature range ambient to max. 60 degree centigrade. Individual Humidity and Temperature controller cum indicator multispan type (dry bulb and Wet bulb temperature indicator). Operated on 2.5 KW, 220 volts single phase AC.. Stainless steel body. Operated with 230 volts AC</p>	1

SI No	Items Name	Specification	Qty
		<p>Supply with additional 304SS AISI Baking tray of 12"x 18" of 10 pcs for bread.</p> <p>Supply with additional GI make bread moulds 1 pound x 20pcs with cover, ½ pound x 20 pcs with cover, ¼ pound x 20 pcs with cover</p>	
105	Rotary Rack Oven (Electric heated):	<p>Rotary Rack Oven (Electric heated): Capacity 35-40 pcs bread of 400 grams per batch. Trays size – 12"x18", nos. of solid tray – 10 nos. Heating load – 12 KW and Compton Motor Load 1 HP for trolley rotating motor and 2HP for uniform air circulation system.</p> <p>Completely made of 304SS AISI, Inner made of S.S 304. and outer made of SS 304. Fine exhaust system. Temperature range ambient to max. 300 degree centigrade. Digital control panel with digital temperature controller multispanspan and controller for trolley rotating motor . white LED light arrangement to see inner chamber, Operated with 440 volts 3 phase, 4 wire AC.</p> <p>Supply with additional aluminium make Baking tray of 12"x 18" of 10 pcs for bread.</p> <p>Supply additional SS 304 made wire net type fine net tray of 12"x 18" of 10 pcs for drying.</p> <p>Supply additional GI made Muffin cake tray of 12"x 18" of 10 pcs for Cake baking tray.</p> <p>Supply with additional GI make bread moulds 1 pound x 20pcs with cover, ½ pound x 20 pcs with cover, ¼ pound x 20 pcs with cover, Round cake moulds 6" dia x 4" height = 20 pcs, Round cake moulds 9" dia x 4" height = 20 pcs, rectangular cake pan of 250 gm =20 pcs and 500 gm= 20 pcs.</p> <p>Supply with biscuit dies of square size (10 pcs), rectangular size (10 pcs), round size (10 pcs).</p>	1

SI No	Items Name	Specification	Qty
106	Heat sealing machine	Heat sealing machine	1
107	Dough sheeter	Dough sheeter floor stand model. Roller size 520 mm. thickness adjusted 30 mm to 2mm. Forward and reverse movement of dough sheeter, operated on 415 volts.	1
108	Hand Cookies Dies	<p>Hand Cookies press SS made with different size dies. Foreign Made products.</p> <ul style="list-style-type: none"> • Cookies Maker extrudes firm dough into creative shapes for easy cookies and other treats without rolling or cutting dough • Made from anodised aluminum, steel, and ABS; includes 20 traditional cookie disc shapes, complete instructions and 10-year manufacturer's warranty • Easily adjust cookie sizes from large to small with just the turn of a knob; yields 35 to 40 small cookies and 20 to 25 large cookies • Remove top cover, insert desired cookie disc, fill with dough, replace top and press handle; each press advances dough for consistent looking cookies • Ergonomic design; easier and less messy than cookie cutters; disassembles for cleaning; hand wash in warm, soapy water; available exclusively from HIC 	3
109	Planetary Mixture:	<p>Planetary Mixture:</p> <p>Imported make table top mixer tilt head type model. SS bowl with handle, plus three standard accessories: flat beater, wire whip and dough hook, drive by</p>	1

Sl No	Items Name	Specification	Qty
		motor with various speed on 220 volt AC. Capacity - 5 liter.	
110	Hot air oven (18''×18''×24'') inch size	Hot air oven (18''×18''×24'') with blower digital temp (Multispan) and time control, inside made of 304SS of 20gage, outside of MS with powder coated finish, ball catcher heavy door. Three side heating elements, Standard double wall fabrication, Inner chamber made of highly polished stainless steel sheet, Exterior fabricated out of thick mild steel duly finished in white stoving enamel with mat finished colour combinations, Quick and uniform heating in range of 50°C to 250°C ±2°C controlled by capillary type thermostat, L-shaped thermometer is built-in type, Control panel is provided with selector switch (Maltispan) of high or low rates of power thermostat control knob and indicators for mains & thermostat.	1
111	Single deck Oven for bread making	single deck Oven for bread making Deck Quantity: 1deck, Fire Distribution: Bottom and Top Temperature Display: 0.1c Tray Quantity: 3-4trays, 400*600mm Consumption: Electric Control: Manual Temperature: Room Temperature to 300°C Clients can avail from us high-quality Baking Oven which is suitable for all Kind of baking	1
112	Refrigerator having five star BEE mark	Refrigerator having five star BEE mark with separate deep freeze and normal freeze, Capacity - 350lit and above. Supply with voltage stabilizer 3KV	1
113	High precision balance Capacity=1000 g	High precision balance Capacity=1000gm Readability=0.001 SS Pan size (mm) = 128×128	1
114	High precision balance Capacity=6100 g	High precision balance Capacity=6100gm Readability=0.01 SS Pan size (mm) = 165×1	1
115	Digital Balance 30 kg capacity	Digital Balance 30 kg capacity	2

Marks Distribution

Outcome	Outcome Code	Total Th marks	Total Pr marks	Total OJT marks
Select and formulate various ingredients required in different Bakery products manufacturing process	FPT/1115/OC1	20	70	0
Operate various Equipment and machinery used in Bakery Industry	FPT/1115/OC2	20	90	0
Perform production of bread using various Equipment and machinery	FPT/1115/OC3	20	70	0
Perform production of Cake and Pastry using various Equipment and machinery as per the requirements	FPT/1115/OC4	20	90	0
Perform production of Biscuits, Cookies and Crackers using various Equipment and machinery	FPT/1115/OC5	20	90	0
Perform production of Miscellaneous Bakery Products using various Equipment and machinery	FPT/1115/OC6	20	100	0
Conduct manual/automatic packaging/labelling operation of Finished baked Products	FPT/1115/OC7	20	70	0
Implement Food safety hygiene and sanitation practices at bakery products manufacturing process	FPT/1115/OC8	10	70	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	FPT/1115/OC9	0	0	150
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0