# Model Curriculum

**QP Name: Baking Technician/Operative**

**QP Code: FIC/Q5005**

**QP Version: 3.0**

**NSQF Level: 3**

**Model Curriculum Version: 3.0**

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# Training Parameters

| | |
|---|---|
| **Sector** | Food Processing |
| **Sub-Sector** | Bread and Bakery |
| **Occupation** | Processing-Bread and Bakery |
| **Country** | India |
| **NSQF Level** | 3 |
| **Aligned to NCO/ISCO/ISIC Code** | NCO-2015/7512.0100 |
| **Minimum Educational Qualification and Experience** | 1. 10th grade pass with 2-year of relevant experience<br>OR<br>2. 11th grade pass without experience<br>OR<br>3. Completed 1$^{st}$ year of 3 years diploma (after 10$^{th}$) and pursuing regular diploma<br>OR<br>4. 10$^{th}$ grade pass with 1 years of NTC/NAC<br>OR<br>5. Previous relevant qualification of NSQF Level 3 with 2 years of relevant experience<br>OR<br>6. Previous relevant qualification of NSQF Level 3.5 with 1 year of relevant experience |

| Pre-Requisite License or Training | 1. Baking process for all baked process<br>2. Training on food standards for baked products<br>3. Operating different types of baking ovens<br>4. GMP<br>5. HACCP<br>6. QMS<br>7.Computer basics<br>8.Training in food Safety Standards and Regulations as per FSSAI (Mandatory) |
|---|---|
| Minimum Job Entry Age | 18 years |
| Last Reviewed On | 29-07-2021 |
| Next Review Date | 28-07-2024 |
| Version | 3.0 |
| NSQC Approval Date | 29-07-2021 |
| Model Curriculum Creation Date | 04-05-2021 |
| Model Curriculum Valid Upto Date | 28-07-2024 |
| Model Curriculum Version | 3.0 |
| Minimum Duration of the Course | 300 Hours |
| Maximum Duration of the Course | 300 Hours |

# Program Overview

This section summarizes the end objectives of the program along with its duration.

## Training Outcomes

At the end of the program, the participants will be able to:

- Maintain work area and process machineries for baking appropriately
- Prepare for production of bakery products as per production needs
- Prepare bakery products as per standard work practices
- Document and record necessary documents
- Apply safety, hygiene and sanitation practices at the workplace effectively

## Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

| NOS and Module Details | Theory Duration | Practical Duration | On-the-Job Training Duration (Mandatory) | On-the-Job Training Duration (Recommended) | Total Duration |
|---|---|---|---|---|---|
| **FIC/N5017**<br>**Prepare and maintain work area and machineries for baking products in**<br>**The oven**<br>**NOS Version No.:1.0**<br>**NSQF Level: 4** | **20:00 Hours** | **40:00 Hours** | **00:00Hours** | **00:00Hours** | **60:00 Hours** |
| Module1: Introduction to Training Program and Overview of Food Processing Industry | 03:00 Hours | 00:00 Hours | 00:00Hours | 00:00Hours | 03:00 Hours |

| | | | | | |
|---|---|---|---|---|---|
| Module2: Prepare work Area and equipment for baking | 17:00 Hours | 40:00 Hours | 00:00Hours | 00:00Hours | 57:00 Hours |
| **FIC/N5018 Prepare for baking products in the oven NOSVersionNo.:1.0 NSQF Level:4** | **10:00 Hours** | **20:00 Hours** | **00:00Hours** | **00:00Hours** | **30:00 Hours** |
| Module3: Prepare for baking products in the oven | 10:00 Hours | 20:00 Hours | 00:00Hours | 00:00Hours | 30:00 Hours |
| **FIC/N5019 Bake bakery products in the oven NOSVersionNo.:1.0 NSQF Level: 4** | **30:00 Hours** | **90:00 Hours** | **00:00Hours** | **00:00Hours** | **120:00 Hours** |
| Module4: Bake bakery Products in the oven | 30:00 Hours | 90:00 Hours | 00:00Hours | 00:00Hours | 120:00 Hours |
| **FIC/N5020 Complete documentation and record keeping related to baking products in the oven NOSVersionNo.:1.0 NSQFLevel:4** | **10:00 Hours** | **20:00 Hours** | **00:00Hours** | **00:00Hours** | **30:00 Hours** |
| Module 5: Complete documentation and record keeping related to baking Products in the oven | 10:00 Hours | 20:00 Hours | 00:00Hours | 00:00Hours | 30:00 Hours |
| **FIC/N9001 Ensure Food safety, hygiene and sanitation for processing food products NOSVersionNo.:1.0 NSQF Level: 4** | **10:00 Hours** | **20:00 Hours** | **00:00Hours** | **00:00Hours** | **30:00 Hours** |

| | | | | | |
|---|---|---|---|---|---|
| Module 6: Food safety, hygiene and sanitation for processing food products | 10:00 Hours | 20:00 Hours | 00:00Hours | 00:00Hours | 30:00 Hours |
| **DGT/VSQ/N0101 Employability Skills NOS Version No.: 1.0 NSQF Level: 2** | **12:00 Hours** | **18:00 Hours** | **00:00Hours** | **00:00Hours** | **30:00 Hours** |
| Module7: Employability Skills | 12:00 Hours | 18:00 Hours | 00:00Hours | 00:00Hours | 30:00 Hours |
| **Total Duration** | **92:00 Hours** | **208:00 Hours** | **00:00Hours** | **00:00Hours** | **300:00 Hours** |

# Module Details

## Module1: Introduction to Training Program and Overview of Food Processing Industry
*Mapped to FIC/N5017 v1.0*

**Terminal Outcomes:**

- Discuss in brief about food processing sector and its sub-sector

- Discuss about Baking sectors and its current and future market trends

- Discuss the roles & opportunities available for baking technicians in food processing industry

| Duration: 03:00 | Duration: 00:00 |
|---|---|
| **Theory–Key Learning Outcomes** | **Practical–Key Learning Outcomes** |
| <ul><li>Describe food processing and its sub-sectors</li><li>Discuss the future trends and career growth opportunities available to baking technicians in the food processing industry.</li><li>Summarise the key roles and responsibilities of a 'Baking Technician/Operative'.</li><li>Discuss the role of organisational policies and procedures in the job.</li><li>List the sequence of tasks performed for baking.</li></ul> | |
| **Classroom Aids:** | |
| Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook. | |
| **Tools, Equipment and Other Requirements** | |
| Nil | |

## Module2: Prepare work area and equipment for baking

### Mapped to FIC/N5017 v1.0

**Terminal Outcomes:**

- Discuss the tasks to be performed to prepare for production of baked products
- State the importance of maintaining tools and equipment effectively

| Duration: 17:00 | Duration: 40:00 |
|---|---|
| **Theory–Key Learning Outcomes** | **Practical–Key Learning Outcomes** |
| <ul><li>Discuss the elements of preparing for production of baked products.</li><li>List the chemical agents utilised for cleaning and maintaining the work area and baking equipment.</li><li>Describe the maintenance activities that are performed as per work requirements.</li><li>List the tools and equipment required for rectifying faults in the process machinery.</li></ul> | <ul><li>Show how to clean the work area and baking equipment to prepare for production.</li><li>Display the procedure to rectify faults and minor repairs in process machinery.</li><li>Show how to maintain the tools and machines utilised for production.</li></ul> |
| **Classroom Aids:** | |
| Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook | |
| **Tools, Equipment and Other Requirements** | |
| Baking ovens, baking sheet and rack, proof box, refrigerator, commercial mixer, wire whisker, packaging machine, protective gloves, headcaps, aprons, safety goggles, safety boots, mouth masks, sanitizer and food safety manuals. | |

## Module 3: Prepare for baking products in the oven
### Mapped to FIC/N5018 v1.0

**Terminal Outcomes:**

- List the tasks to be performed to prepare for baking
- Demonstrate the techniques to be followed to inspect and prepare the raw materials as per desirable standards

| Duration:10:00 | Duration:20:00 |
|---|---|
| **Theory–Key Learning Outcomes** | **Practical–Key Learning Outcomes** |
| <ul><li>Explain the production sequence</li><li>List the various types of raw materials used in baking.</li><li>Discuss the various considerations such as production needs, product to be prepared, etc. for selecting the desired raw materials.</li><li>Describe the procedure for storing raw materials appropriately.</li></ul> | <ul><li>Demonstrate how to plan the production process</li><li>Perform calculations (such as batch size)as required for production.</li><li>Prepare a plan the production schedule as per organizational standards and instructions while ensuring prioritization of urgent orders, optimal utilisation of machine capacity, manpower, etc.</li><li>Show how to organize the raw materials, packaging materials, manpower , equipment and machinery for production.</li><li>Employ appropriate techniques to inspect the conformance of raw material quality (for quality, grade) to the organisational standards.</li><li>Demonstrate the tasks to be performed to prepare the raw material for production.</li></ul> |
| **Classroom Aids:** | |
| Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook | |
| **Tools, Equipment and Other Requirements** | |
| | |

Baking ovens, baking sheet and rack, proof box, refrigerator, commercial mixer, wire whisker, packaging machine, protective gloves, head caps, aprons, safety goggles, safety boots, mouth masks, sanitizer and food safety manuals.

## Module 4: Bake bakery products in the oven
### Mapped to FIC/N5019 v1.0

**Terminal Outcomes:**

- Discuss the stages involved in the production of baked products
- Demonstrate the tasks to be performed for producing baked products

| **Duration**: *30:00* | **Duration**: *90:00* |
|---|---|
| **Theory–Key Learning Outcomes** | **Practical–Key Learning Outcomes** |
| <ul><li>List the different types of machines used in the manufacturing in baking industry.</li><li>Identify the raw materials (such as fat, salt, yeast and flour)to be obtained as per requirements.</li><li>Describe the desirable standards of functioning of the machines used in the process.</li><li>List the various stages involved in manufacturing of bread & biscuits.</li><li>Describe quality checks for baked products produced</li><li>Discuss the importance of monitoring operations while manufacturing of biscuits.</li><li>Discuss the standard techniques used in cleaning the machines such as CIP & COP</li></ul> | <ul><li>Demonstrate the way to check the machinery to be utilised for desired levels of cleanliness and functioning.</li><li>Assemble the machine components appropriately.</li><li>Demonstrate the procedure to operate the manufacturing machines used for making biscuits.</li><li>Carry out the process of proofing dough in bread preparation</li><li>Execute the process of baking products in oven</li><li>Show how to monitor the manufacturing processes in biscuit production.</li><li>Apply standard work practices for packing the finished product.</li><li>Employ appropriate technique to analyse the quality of finished product.</li><li>Display the techniques to clean the machines post completion of production process.</li></ul> |
| **Classroom Aids:** | |
| | |

Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook

## Tools, Equipment and Other Requirements

Baking ovens, baking sheet and rack, proof box, refrigerator, commercial mixer,wire whisker, packagingmachine,protectivegloves,headcaps,aprons,safetygoggles,safetyboots,mouth masks, sanitizer and food safety manuals.

## Module 5: Complete documentation and record keeping related to baking products in the oven

## Mapped to FIC/N5020 v1.0

**Terminal Outcomes:**

- Discuss the importance of recording information in production
- Demonstrate the standard practice followed to record production information

| *Duration*: 10:00 | *Duration*: 20:00 |
|---|---|
| **Theory–Key Learning Outcomes** | **Practical–Key Learning Outcomes** |
| <ul><li>Discuss the importance of documentation and maintaining records during the entire work process.</li><li>List the information to be recorded as per the production work.</li></ul> | <ul><li>Document necessary information such as production plan, process parameters, and finished products.</li><li>Prepare records to record information as per production and organisational requirements.</li><li>Demonstrate the process of maintaining documentation for raw material, production schedule, process parameters and finished products</li></ul> |
| **Classroom Aids:** | |
| Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook | |
| **Tools, Equipment and Other Requirements** | |
| Food safety manual, log books. | |

## Module 6: Food Safety, Hygiene and sanitation for Processing Food Products
### *Mapped to FIC/N9001 v1.0*

**Terminal Outcomes:**

- Discuss the importance of health and safety at the workplace
- Demonstrate the tasks to be performed for ensuring health and safety at the workplace

| Duration: *10:00* | Duration: *20:00* |
|---|---|
| **Theory–Key Learning Outcomes** | **Practical–Key Learning Outcomes** |
| <ul><li>Discuss the importance of safety, hygiene and sanitation in the baking industry.</li><li>Discuss about hazards and contamination and methods to prevent them</li><li>Discuss the relevant HACCP principles to be followed in the baking industry.</li><li>Discuss about the GMP and GHP practices to be followed in the organization</li><li>Discuss FIFO/FEFO and methods to prevent contamination an cross contamination of products</li></ul> | <ul><li>Demonstrate the steps to</li><li>Be performed to maintain a safe and hygiene workplace.</li><li>Demonstrate the steps to be performed to implement HACCP practices for ensuring food safety.</li><li>Role play a situation depicting the safety practices to be followed at the workplace.</li></ul> |
| **Classroom Aids:** | |
| Computer, Projection Equipment, Power Point Presentation and software, Facilitator's Guide, Participant's Handbook | |
| **Tools, Equipment and Other Requirements** | |
| Protective gloves, headcaps, aprons, safety goggles, safety boots, mouth covers, sanitizer, food safety manual, logbooks etc. | |

## Module7: Employability skills
## Mapped to DGT/VSQ/N0101, v 1.0

**Terminal Outcomes:**

- Describe the traits of individual at workplace
- Demonstrate apply employability and entrepreneurship skills at workplace

| Duration: *12:00* | Duration: *18:00* |
|---|---|
| **Theory – Key Learning Outcomes** | **Practical – Key Learning Outcomes** |
| <ul><li>Discuss the importance of Employability Skills in meeting the job requirements.</li><li>Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.</li><li>Discuss 21st century skills.</li><li>Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations.</li><li>Discuss the significance of reporting sexual harassment issues in time</li><li>Discuss the significance of using financial products and services safely and securely.</li><li>Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws</li><li>Explain the importance of managing expenses, income, and savings.</li><li>Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely</li><li>Discuss the need for identifying opportunities for potential business, sources for arranging money and</li></ul> | <ul><li>Show how to practice different environmentally sustainable practices</li><li>Use appropriate basic English sentences/phrases while speaking</li><li>Demonstrate how to communicate in a well - mannered way with others</li><li>Demonstrate working with others in a team</li><li>Show how to conduct oneself appropriately with all genders and PwD</li><li>Show how to operate digital devices and use the associated applications and features, safely and securely</li><li>Create a biodata</li><li>Use various sources to search and apply for jobs</li></ul> |

| | |
|---|---|
| potential legal and financial challenges<br>• Differentiate between types of customers<br>• Explain the significance of identifying customer needs and addressing them<br>• Discuss the significance of maintaining hygiene and dressing appropriately<br>• Discuss the significance of dressing up neatly and maintaining hygiene for an interview<br>• Discuss how to search and register for apprenticeship opportunities | |

**Classroom Aids:**

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide,Participant's Handbook

**Tools, Equipment and Other Requirements**

Computer/laptop.

# Annexure

## Trainer Requirements

| Trainer Prerequisites | | | | | | |
|---|---|---|---|---|---|---|
| Minimum Educational Qualification | Specialization | Relevant Industry Experience | | Training Experience | | Remarks |
| | | Years | Specialization | Years | Specialization | |
| Diploma | Food Tech or Food Engineering | 4 | Bakery industry | 1 | Training of baking technicians | |
| B.Sc./B. Tech/BE | Food Technology or Food Engineering | 2 | Bakery industry | 1 | Training of baking technicians | |
| M.Sc./M. Tech/ME | Food Technology or Food Engineering | 1 | Bakery industry | 1 | Training of baking technicians | |

| Trainer Certification | |
|---|---|
| Domain Certification | Platform Certification |
| Certified for Job Role: "Baking Technician/Operative" mapped to QP: "FIC/Q5005, v3.0". The minimum accepted score is 80%. | Recommended that the Trainer is certified for the Job Role: "Trainer" (VET & SKILLS), mapped to the Qualification Pack: "MEP/Q2601", V.2. Minimum accepted SCORE IS 80 % as per SSC guidelines. |

## Assessor Requirements

| Assessor Prerequisites | | | | | |
|---|---|---|---|---|---|
| **Minimum Educational Qualification** | **Specialization** | **Relevant Industry Experience** | | **Training/Assessment Experience** | | **Remarks** |
| | | *Years* | *Specialization* | *Years* | *Specialization* | |
| Diploma | Food Tech or Food Engineering | 4 | Bakery industry | 1 | Assessment of baking technicians | |
| B.Sc./B. Tech/BE | Food Technology or Food Engineering | 2 | Bakery industry | 1 | Assessment of baking technicians | |
| M.Sc./M. Tech/ME | Food Technology or Food Engineering | 1 | Bakery industry | 1 | Assessment of baking technicians | |

| Assessor Certification | |
|---|---|
| **Domain Certification** | **Platform Certification** |
| Certified for Job Role: "Baking Technician/Operative" mapped to QP: "FIC/Q5005, v3.0". Minimum accepted score is 80%. | Recommended that the Assessor is certified for the Job Role: "Assessor" (VET & SKILLS), mapped to the Qualification Pack: "MEP/Q2701", V-2. Minimum accepted SCORE IS 80 % as per SSC guidelines. |

## Assessment Strategy

This section includes the processes involved in identifying, gathering and interpreting information to evaluate the learner on the required competencies of the program.

Assessment will be based on the concept of Independent Assessors empanelled with Assessment Agencies, identified, selected, trained and certified on Assessment techniques. These Assessors would be aligned to assess as per the laid down criteria.

Assessment Agency would conduct assessment only at the training centres of Training Partner or designated testing centers authorized by FICSI.

Ideally, the assessment will be a continuous process comprising of three distinct steps:

A. Mid-term assessment
B. Term/Final Assessment

Each National Occupational Standard (NOS) in the respective QPs will be assigned weightage. ThereineachPerformanceCriteriaintheNOSwillbeassignedmarksfortheoryand/orpractical based on relative importance and criticality of function.

This will facilitate preparation of question bank / paper sets for each of the QPs. Each of these papers sets/question banks created by the Assessment Agency will be validated by the industry subject matter experts through FICSI, especially with regard to the practical test and the defined tolerances, finish, accuracy etc.

The following tools are proposed to be used for final assessment:

i. Written Test: This will compriseof(i)True/FalseStatements(ii)MultipleChoiceQuestions(iii) Matching Type Questions. Online system for this will be preferred.

ii. Practical Test: This will comprise a test job to be prepared as per project briefing following appropriate working steps, using necessary tools, equipment and instruments. Through observation

it will be possible to ascertain candidate's aptitude, attention to details, quality consciousness etc. The end product will be me assured against the pre-decided MCQ filled by the Assessor to gauge the level of his skill achievements.

iii. Structured Interview: This tool will be used to assess the conceptual understanding and the behavioural aspects as regards the job role and the specific task at hand.

# Glossary

| Term | Description |
|---|---|
| Declarative Knowledge | Declarative knowledge refers to facts, concepts and principles that need to Be known and/or understood in order to accomplish or to solve a problem. |
| Key Learning Outcome | Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training Outcome is specified in terms of knowledge, understanding(theory)and skills (practical application). |
| OJT(M) | On-the-job training(Mandatory);trainees are mandated to complete specified hours of training on site |
| OJT(R) | On-the-job training(Recommended);trainees are recommended the specified hours of training on site |
| Procedural Knowledge | Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psycho motor skills. |
| Training Outcome | Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**. |
| Terminal Outcome | Terminal outcome is a statement of what a learner will know, understand and be able to do **upon the completion of a module.** A set of terminal outcomes help to achieve the training outcome. |

## Acronyms and Abbreviations

| Term | Description |
|------|-------------|
| QP | Qualification Pack |
| NSQF | National Skills Qualification Framework |
| NSQC | National Skills Qualification Committee |
| NOS | National Occupational Standards |
| HACCP | Hazard Analysis and Critical Control Points |
| GMP | Good Manufacturing Practices |
| GHP | Good Hygiene Practices |