



Model Curriculum

QP Name: Baking Technician/Operative

QP Code: FIC/Q5005

QP Version: 1.0

NSQF Level: 4

Model Curriculum Version: 1.0

Food Industry Capacity and Skill Initiative (FICSI)
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Training Parameters

Sector	Food Processing
Sub-Sector	Bread and Bakery
Occupation	Processing
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2004/7412.20
Minimum Educational Qualification and Experience	18 years of age 1. Class 12th passed in any stream 2. Class 10th passed and 2 years of course in relevant stream. 3. Class 10th passed and 2 years of relevant experience 4. Class 10th Pass and 2 years of ITI
Pre-Requisite License or Training	1. Baking process for all baked process 2. Training on food standards for baked products 3. Operating different types of baking ovens 4. GMP 5. HACCP 6. QMS 7. Computer basics 8. Training in food Safety Standards and Regulations as per FSSAI (Mandatory)
Minimum Job Entry Age	18 years
Last Reviewed On	31-05-2021
Next Review Date	31-05-2024
Version	1
NSQC Approval Date	

Model Curriculum Creation Date	04-09-2018
Model Curriculum Valid Up to Date	31-05-2024
Model Curriculum Version	1.0
Minimum Duration of the Course	340 Hours
Maximum Duration of the Course	340 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 as required in the work process
- 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
Introduction to the training program	07:00 Hours	10:00 Hours	00:00 Hours	00:00 Hours	17:00 Hours
Module 1: Introduction to Training Program and Overview of Food Processing Industry	03:00 Hours	00:00 Hours	00:00 Hours	00:00 Hours	03:00 Hours
Module 2: Professional and Core Skills	04:00 Hours	10:00 Hours	00:00 Hours	00:00 Hours	14:00 Hours
FIC/NS017 Prepare and maintain work area and machineries for baking products in the oven NOS Version No.: 1.0 NSQF Level: 4	12:00 Hours	20:00 Hours	00:00 Hours	00:00 Hours	32:00 Hours

Module 3: Prepare work area and equipment for baking	12:00 Hours	20:00 Hours	00:00 Hours	00:00 Hours	32:00 Hours
FIC/N5018 Prepare for baking products in the oven NOS Version No.: 1.0 NSQF Level: 4	12:00 Hours	35:00 Hours	00:00 Hours	00:00 Hours	47:00 Hours
Module 4: Prepare for baking products in the oven	12:00 Hours	35:00 Hours	00:00 Hours	00:00 Hours	47:00 Hours
FIC/N5019 Bake bakery products in the oven NOS Version No.: 1.0 NSQF Level: 4	30:00 Hours	90:00 Hours	00:00 Hours	00:00 Hours	120:00 Hours
Module 5: Bake bakery products in the oven	20:00 Hours	80:00 Hours	00:00 Hours	00:00 Hours	100:00 Hours
Module 6: Organizational Standards and Norms	10:00 Hours	10:00 Hours	00:00 Hours	00:00 Hours	20:00 Hours
FIC/N5020 Complete documentation and record keeping related to baking products in the oven NOS Version No.: 1.0 NSQF Level: 4	14:00 Hours	25:00 Hours	00:00 Hours	00:00 Hours	39:00 Hours
Module 7: Complete documentation and record keeping related to baking products in the oven	08:00 Hours	10:00 Hours	00:00 Hours	00:00 Hours	18:00 Hours
Module 8: IT Orientation	06:00 Hours	15:00 Hours	00:00 Hours	00:00 Hours	21:00 Hours
FIC/N9001 Food safety, hygiene and sanitation for processing food products NOS Version No.: 1.0 NSQF Level: 3	15:00 Hours	30:00 Hours	00:00 Hours	00:00 Hours	45:00 Hours

Module 9: Food safety, hygiene and sanitation for processing food products	15:00 Hours	30:00 Hours	00:00 Hours	00:00 Hours	45:00 Hours
Employability and Entrepreneurship skills	28:00 Hours	12:00 Hours	00:00 Hours	00:00 Hours	40:00 Hours
Module 10: Employability and Entrepreneurship skills	28:00 Hours	12:00 Hours	00:00 Hours	00:00 Hours	40:00 Hours
Total Duration	118:00 Hours	222:00 Hours	00:00 Hours	00:00 Hours	340:00 Hours

Module Details

Module 1: Introduction to Training Program and Overview of Food Processing Industry Bridge Module

Terminal Outcomes:

- Discuss the opportunities available for baking technicians in food processing industry
- List the GMP and HACCP practices and FSSAI guidelines applicable in industrial baking

Duration: 03:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the future trends and career growth opportunities available to baking technicians in the food processing industry. • Summarise the key roles and responsibilities of a 'Baking Technician/Operative'. • List the various terminologies used by baking technicians in the food processing industry. • Discuss the role of organisational policies and procedures in the job. • List the sequence of tasks performed for baking. • Discuss the impact of not following Good Manufacturing Practices (GMP), Hazard Critical Analysis and Control Points (HACCP) and Food Safety and Standards Authority of India (FSSAI) guidelines in producing baked products. 	
Classroom Aids:	

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

Tools, Equipment and Other Requirements
Nil

Module 2: Professional and Core Skills

Bridge Module

Terminal Outcomes:

- Discuss the attributes of desirable professional behaviour
- Demonstrate the standard measures undertaken for working effectively

Duration: 04:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Identify personal strengths and weaknesses. • Discuss the importance of workorder in the process. • State the importance of decision making in the job. • State the importance of communicating effectively. 	<ul style="list-style-type: none"> • Apply standard practice to undertake a self-assessment test for identifying strengths and weaknesses. • Plan and prioritise tasks effectively to ensure timely completion. • Demonstrate the ways to analyse situations for identifying problems and making sound decision promptly.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Gloves, hair net, shoe cover, soap dispenser, hand sanitizer, ear plugs, masks, aprons/lab coats eye protection, hard hats, gloves, rubber boots, etc.	

Module 3: Prepare and maintain work area and machineries for baking products in the oven

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: 12:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the elements of preparing for production of baked products. • List the chemical agents utilised for cleaning and maintaining the work area and baking equipment. • Describe the maintenance activities that are performed as per work requirements. • List the tools and equipment required for rectifying faults in the process machinery. 	<ul style="list-style-type: none"> • Show how to clean the work area and baking equipment to prepare for production. • Display the procedure to rectify faults and minor repairs in process machinery. • Show how to maintain the tools and machines utilised for production.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint 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: 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: 12:00	Duration: 35:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the various types of raw materials used in baking. • Discuss the various considerations such as production needs, product to be prepared, etc. for selecting the desired raw materials. • Describe the procedure for storing raw materials appropriately. 	<ul style="list-style-type: none"> • Demonstrate how to plan the production process • Perform calculations (such as batch size) as required for production. • Prepare a plan the production schedule as per organizational standards and instructions while ensuring prioritisation of urgent orders, optimal utilisation of machine capacity, manpower, etc. • Show how to organize the raw materials, packaging materials, manpower, equipment and machinery for production. • Employ appropriate techniques to inspect the conformance of raw material quality (for quality, grade) to the organisational standards. • Demonstrate the tasks to be performed to prepare the raw material for production.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint 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 5: 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: 20:00	Duration: 80:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the different types of machines used in the manufacturing in baking industry. • Identify the raw materials (such as fat, salt, yeast and flour) to be obtained as per requirements. • Describe the desirable standards of functioning of the machines used in the process. • List the stages involved in pre-checking production machinery. • List the various stages involved in manufacturing of biscuits. • Discuss the importance of monitoring operations while manufacturing of biscuits. • Discuss the standard techniques used in cleaning the machines such as CIP (clean-in-place). 	<ul style="list-style-type: none"> • Demonstrate the way to check the machinery to be utilised for desired levels of cleanliness and functioning. • Assemble the machine components appropriately. • Demonstrate the procedure to operate the manufacturing machines used for making biscuits. • Carry out the process of proofing dough in bread preparation • Execute the process of baking products in oven • Show how to monitor the manufacturing processes in biscuit production. • Apply standard work practices for packing the finished product. • Employ appropriate technique to analyse the quality of finished product. • Display the techniques to clean the machines post completion of production process.
Classroom Aids:	

Computer, Projection Equipment, PowerPoint 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 6: Organizational Standards and Norms

Mapped to FIC/N5019, v 1.0

Terminal Outcomes:

- Apply the principles of food safety and hygiene in the work environment

Duration: 10:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the roles and responsibilities of a jam, jelly and ketchup processing technician. • Discuss how to conduct yourself at the workplace. 	<ul style="list-style-type: none"> • Apply personal hygiene and sanitation guidelines. • Apply food safety hygiene standards in the work environment. • Demonstrate how to conduct yourself at the workplace • Execute the roles and responsibilities as per organisational standards and norms
Classroom Aids	
Board/Chart paper/ Laptop and Projector, Trainer Handbook, Participant handbook, etc	
Tools, Equipment and Other Requirements	
Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer	

Module 7: 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: 08:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the importance of documentation and maintaining records during the entire work process. • List the information to be recorded as per the production work. 	<ul style="list-style-type: none"> • Document necessary information such as production plan, process parameters, and finished products. • Prepare records to record information as per production and organisational requirements. • Demonstrate the process of maintaining documentation for raw material, production schedule, process parameters and finished products
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Food safety manual, logbooks.	

Module 8: IT orientation

Mapped to FIC/N5020 v1.0

Terminal Outcomes:

- List the parts of a computer
- Demonstrate the effective use of data recording applications at the workplace

Duration: 06:00	Duration: 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the various parts of a computer. • Describe the functions of different computer devices. • List the various applications used in recording information. 	<ul style="list-style-type: none"> • Demonstrate the standard techniques used to operate a computer. • Show how to use an ERP software for recording information. • Demonstrate the effective use of applications such as word processor and spreadsheets.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Computer/laptop.	

Module 9: 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: 15:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the importance of safety, hygiene and sanitation in the baking industry. • Discuss the relevant HACCP principles to be followed in the baking industry. 	<ul style="list-style-type: none"> • Demonstrate the steps to be performed to maintain a safe and hygiene workplace. • Demonstrate the steps to be performed to implement HACCP practices for ensuring food safety. • Roleplay a situation depicting the safety practices to be followed at the workplace.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Protective gloves, head caps, aprons, safety goggles, safety boots, mouth covers, sanitizer, food safety manual ,logbooks etc.	

Module 10 : Employability and Entrepreneurship skills

Terminal Outcomes:

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

Duration: 28:00	Duration: 12:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss own strengths and weaknesses and analyse the gaps to ensure continuous improvement. • Discuss the measures to be undertaken to utilise time effectively thereby achieving maximum productivity. • List the characteristics of innovative individuals • List the levels of Maslow Hierarchy of needs • List the traits of effective team • Discuss tips for stress management • Discuss the importance of good work ethics • Discuss how to manage an enterprise • Describe how to plan effective strategies for solving problems and improving work culture within the team. • List the various types of digital marketing techniques. • Discuss the types and importance of e-commerce in promoting businesses. • List the various types of online banking services being used widely. • Discuss the procedure to apply for bank finances 	<ul style="list-style-type: none"> • Show how to analyse a situation to identify gaps for improving the work process. • Demonstrate the procedure to plan the time taken to perform various tasks effectively. • Describe how market research is carried out • Role play the characteristics of an effective entrepreneur and leader • Demonstrate on how to identify new business opportunities • Prepare a sample plan to solve problems and improve productivity at the workplace. • Demonstrate the procedure to operate a computer for digital marketing, e-commerce, branding, etc. • Show how to use services such as NEFT, IMPS, UPI, RTGS for online banking.

<ul style="list-style-type: none"> • List the elements of a proposal to attract future business opportunities and prospective clients. • Explain how to conduct entrepreneurial programs to identify business opportunities, generate employment and increase clientele. • Understand the make in India campaign • Discuss the importance of Swachh Bharat Abhiyan • Understand the importance of entrepreneurship • Describe the traits of successful entrepreneur • List the types of enterprises • Understand the importance of effective speaking and listening • Discuss the importance of problem solving • Discuss how to deal with failures • Describe the core keys of marketing • Discuss ways to manage risks at workplace 	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Nil	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification <i><Select the minimum educational requirements, such as 12th Pass, Graduate or NSQF certified.></i>	Specialization <i><Specify the areas of specialization that are desirable.></i>	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, v1.0”. Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q2601”. Minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification <i><Select the minimum educational requirements, such as 12th Pass, Graduate or NSQF certified.></i>	Specialization <i><Specify the areas of specialization that are desirable.></i>	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, v1.0". Minimum accepted score is 80%.	Recommended that the Assessor is certified for the Job Role: "Assessor", mapped to the Qualification Pack: "MEP/Q2701". Minimum accepted score as per MEPS guidelines is 80%.

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. Therein each Performance Criteria in the NOS will be assigned marks for theory and / or practical 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 bank so 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 comprise of (i) True / False Statements (ii) Multiple Choice Questions (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 measured 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 a task 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 psychomotor 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