

Model Curriculum

Baking Technician/Operative

SECTOR: FOOD PROCESSING
SUB-SECTOR: BREAD AND BAKERY
OCCUPATION: PROCESSING
REF ID: FIC/Q5005, V1.0
NSQF LEVEL: 4



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

FOOD INDUSTRY CAPACITY AND SKILL INITIATIVE (FICSI)

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: **'Baking Technician/Operative'** QP No. **'FIC/Q5005, NSQF Level 4'**

Date of Issuance: 04 September, 2018

Valid up to: 30 June, 2019

* Valid up to the next review date of the Qualification Pack



Authorized Signatory
(Food Industry Capacity and Skill Initiative)

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Baking Technician/Operative

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Baking Technician/Operative”, in the “Food Processing” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Baking Technician/Operative		
Qualification Pack Name & Reference ID. ID	FIC/Q5005, v1.0		
Version No.	1.0	Version Update Date	04/09/2018
Pre-requisites to Training	Class 10		
Training Outcomes	After completing this programme, participants will be able to: <ul style="list-style-type: none"> • Prepare work area and process machineries for baking in oven • Prepare for production of bakery products in oven • Prepare bakery products in oven • Carry out documentation and record keeping related to baking • Apply safety, hygiene and sanitation practices in the workplace 		

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code FIC/N5017	<ul style="list-style-type: none"> Prepare the machines and tools required for production 	
4.	Prepare for baking products in the oven Theory Duration (hh:mm) 12:00 Practical Duration (hh:mm) 25:00 Corresponding NOS Code FIC/N5018	<ul style="list-style-type: none"> Use basic mathematics for various calculations in day-to-day processes Plan the production schedule as per organizational standards and instructions Organize the raw materials, packaging materials, manpower, equipment and machineries for the scheduled production Identify the raw materials required for production as per production schedule and formation State the methods for storing raw materials for later use Plan the production sequence to maximize capacity, utilization of resources, manpower and machinery Calculate batch size and prioritize urgent orders based on the production schedule and machine capacity Inspect the conformance of raw material quality to company standards Organize quality raw material as per production process and company standards Check the raw material quality and grade Prepare the raw material for production 	Oven, 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, Food Safety Manual
5.	Bake bakery products in the oven Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 40:00	<ul style="list-style-type: none"> Perform a check if all the machineries are clean and in good working conditions List the different machineries involved in manufacturing of bakery products Collect the various raw material like fat, salt, yeast and flour State the working of machineries involved in the production Demonstrate assembling of all components of machines 	Oven, 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, Food Safety Manual

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code FIC/N9001		
8.	Professional and Core Skills Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code Bridge Module	<ul style="list-style-type: none"> Undertake a self-assessment test to identify personal strengths and weaknesses Follow the work order and manage time effectively to complete the tasks assigned State the importance of decision making Identify potential problems and make sound and timely decision State the importance of listening 	
9.	IT orientation Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code FIC/N5020	<ul style="list-style-type: none"> Identify parts of the computer Use the computer keyboard effectively to type Use ERP tool effectively to record day-to-day activities Use the word processor effectively Use the spreadsheet application effectively 	Computer/Laptop
	Total Duration 240:00 Theory Duration 90:00 Practical Duration 150:00	Unique Equipment Required: Oven, 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, Food Safety Manual , Log Books, Computer/Laptop	

Grand Total Course Duration: **240Hours, 0 Minutes**

Recommend OJT Hours: **90Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [SSC: Food Industry Capacity and Skill Initiative](#))

Trainer Prerequisites for Job role: “Baking Technician/Operative” mapped to Qualification Pack: “FIC/Q5005, v1.0”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “FIC/Q8502”, Version 1.0
2	Personal Attributes	An aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training, and pre/post work to ensure competent, employable candidates at the end of the training. Strong communication skills, ability to work as part of a team; a passion for quality and for developing others; well-organized and focused, eager to learn and keep oneself updated with the latest in the mentioned fields.
3	Minimum Educational Qualifications	<ul style="list-style-type: none"> • Diploma in Food Tech or Food Engineering with 4 years of hand on experience in a bakery industry or • B. Sc./B. Tech/BE in Food Technology or Food Engineering with 2-3 years of hand on experience in a bakery industry or • M. Sc./M. Tech/ME in Food Technology or Food Engineering with 1-2 years of hand on experience in a bakery industry.
4a	Domain Certification	Certified for Job Role: “Baking Technician/Operative” mapped to QP: “FIC/Q5005, v1.0”. Minimum accepted score is 80% as per FICSI Guidelines
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102”. Minimum accepted score is 80 % as per FICSI guidelines.
5	Experience	<ul style="list-style-type: none"> • Diploma in Food Tech or Food Engineering with 4 years of hand on experience in a bakery industry or • B. Sc./B. Tech/BE in Food Technology or Food Engineering with 2-3 years of hand on experience in a bakery industry or • M. Sc./M. Tech/ME in Food Technology or Food Engineering with 1-2 years of hand on experience in a bakery industry.

Annexure: Assessment Criteria

CRITERIA FOR ASSESSMENT OF TRAINEES	
Job Role	Baking Technician/Operative
Qualification Pack	FIC/Q5005
Sector Skill Council	Food Processing

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, as well as the selected elective NOS/set of NOS.
OR
4. Assessment will be conducted for all compulsory NOS, as well as the selected optional NOS/set of NOS.
5. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
6. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
7. To pass the Qualification Pack , every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
8. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

		Total Mark	Out Of	Marks Allocation	
				Theory	Skills Practical
1. FIC/N5009 (Prepare and maintain work area and machineries for baking products in the oven)	PC1. Clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	100	25	10	15
	PC2. Ensure that the work area is safe and hygienic for food processing		10	3	7
	PC3. Dispose waste materials as per defined SOP and industry requirements		15	5	10
	PC4. Check the working and performance of all machineries and tools used for production such as oven, slicer, proofer etc.		15	5	10
	PC5. Clean the machineries and tools used with recommended sanitizers following the company specifications and standards		15	5	10
	PC6. Place the necessary tools required for process		5	2	3
	PC7. Attend to the minor repairs/ faults of all machines, if required		15	5	10
			100	35	65
2. FIC/N5018 (Prepare for baking products in the oven)	PC1. Read and understand the production order from the supervisor	100	10	4	6
	PC2. Plan oven loading sequence by: <ul style="list-style-type: none"> • Grouping products that need to be baked immediately after mixing/creaming • Grouping similar kind of products e.g. fermented products such as Bread, buns, puff etc.) • Grouping products that require same process parameters like baking temperature, time etc. • Grouping products that require proofing process • Group products that does not impact the quality of the other when baked together • Planning maximum capacity utilization of machineries • Prioritizing urgent orders 		15	5	10
	PC3. Check the working and performance of each equipment required for process, particularly the fuel flow and burner, proofer/ oven, conveyor, control panel, etc.		7.5	2.5	5
	PC4. Calculate the process time for each Batch for effective utilization of machineries		7.5	2.5	5

	PC5. Plan to utilize machineries for multiple products without affecting the quality of the finished products, and to optimize production and saving energy		5	2	3
	PC6. Allot responsibilities/ work to the assistants and helpers Refer to the process chart/ product flow chart for product(s) baked		5	2	3
	PC7. Refer to the process chart/product flow chart for products baked		5	1	4
	PC8. Organize required oven racks/pans		5	1	4
	PC9. Arrange required cooling racks		5	1	4
	PC10. Prepare the proof box by setting parameters such as temperature, humidity, etc. Prepare and calibrate oven (in case of batch operation) by pre-heating the oven to the specified temperature as per the oven chart		10	4	6
	PC11. Prepare and calibrate oven (in case of batch operation) by preheating the oven to the specified temperature as per the oven chart		5	2	3
	PC12. Prepare the conveyor (in case of continuous operation) by setting the speed of conveyor, baking time, and temperature controls		5	2	3
	PC13. Ensure working and performance of equipment by starting equipment(s),and observing gauges to maintain heat according to specifications		5	2	3
	PC14. Keep the tools accessible to attend minor repairs/faults in case of breakdown		5	2	3
	PC15. Handle emergency situations (e.g.: fire, power failure) while baking		5	2	3
			100	35	65
3. FIC/N5019 (Bake bakery products in the oven)	PC1. Set the proof box to the required temperature and humidity following the proofing chart, as per specifications and organization standards	100	5	2	3
	PC2. Refer to the production chart/proofing chart to understand the loading sequence		3	1	2
	PC3. Load the proof box following the production sequence		5	2	3
	PC4. Monitor proof box parameters such as temperature/humidity		5	2	3
	PC5. Monitor product in the proof box		5	2	3
	PC6. Pull bread at specified heights from proof box		5	2	3
	PC7. Monitor the proof box and product coming out of the proof box		5	2	3

PC8. Pre-heat the oven to specified temperature and check humidity level (if specified)	4	1	3
PC9. Refer to the production chart/proofing chart to understand the loading sequence and process parameters for each product baked	3	1	2
PC10. Set the oven parameters such as baking temperature and time for the product baked	3	1	2
PC11. Observe filled baking pans (to be loaded in oven) to determine whether pans are filled to standard	3	1	2
PC12. Load the ovens with filled baking pans and check that the dough pieces are placed corner to corner	2	0.5	1.5
PC13. Observe spacing between pans as per defined SOPs	2	0.5	1.5
PC14. Monitor and control speed of conveyor to control pans entering oven and to control baking time of various baking product (in continuous operation)	3	1	2
PC15. Monitor oven parameters such as temperature and time during baking process	5	2	3
PC16. Observe colour of the baking product to detect under/ over baking and to achieve finished product of uniform quality	5	2	3
PC17. Unload the oven when the baking process is complete	3	1	2
PC18. Check the quality of the product through sensory parameters such as color, size, appearance, texture, aroma etc.	5	2	3
PC19. Unload the pans/trays using proper technique (this must be done immediately after being taken out of the oven to improve the overall shape of the bread)	3	1	2
PC20. Place baked product on the cooling racks and transfer to the cooling room/cooling area	3	1	2
PC21. Remove excess waste from the baking pans	3	1	2
PC22. Stack the emptied baking pans in the designated area	3	1	2
PC23. Ensure that empty pans are stored appropriately to avoid damage and contamination	2	0.5	1.5
PC24. Adjust or reset controls of the oven to load the next batch product	4	1	3

	PC25. Report discrepancies/concerns in each stage of production to department supervisor for immediate action		3	1	2
	PC26. Clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers		3	1	2
	PC27. Attend minor repairs/faults of all machines (if any)		2	0.5	1.5
	PC28. Ensure periodic (daily/weekly/monthly/quarterly/ half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals		3	1	2
			100	35	65
4. FIC/N5020: Complete documentation and record keeping related to spice processing	PC1. Record details of all raw materials handled (dough/batter) and document the raw material details such as raw materials handled, condition and weight of the raw material while receiving, after proofing process, before loading in oven etc., as per company standards.	100	10	6	4
	PC2. Maintain record of observations (if any) related to raw materials, packaging materials		5	3	2
	PC3. Verify the documents and track them from finished product to raw materials, in case of quality concerns, and during quality management system audit		5	3	2
	PC4. Document production plan with details such as the product details, production sequence, equipment and machinery details, efficiency and capacity utilization of equipment		15	8	7
	PC5. Document process details such as type of raw material used, process parameters (temperature, time etc. as applicable) for entire process handled in process chart or production log for all products produced		20	13	7
	PC6. Document batch size, raw material used, yield after each stage of process, wastage, energy utilization and final products produced		10	6	4
	PC7. Maintain record of observations (if any) or deviations related to process and production		5	3	2
	PC8. Verify documents and track them from finished product to raw material/s		5	3	2

	PC9. Document and maintain records of the types of finished products		5	3	2
	PC10. Document the finished products details such as weight of product, baking time, cooling condition, cooling time, batch number, time of packing, quality parameters (physical parameters), bath number, date of manufacture, date of expiry, other label details etc., as per company standards		10	6	4
	PC11. Maintain record of observations or deviations (if any) related to finished products		5	3	2
	PC12. Verify the documents and track from finished product to raw materials, in case of quality concerns and for quality management system audit		5	3	2
			100	60	40
5. FIC/N9001: Food Safety, hygiene and sanitation for processing food products	PC1. Comply with food safety and hygiene procedures followed in the organization	100	5	2	3
	PC2. Ensure personal hygiene by use of gloves, masks, hair net, ear plugs, boots etc.		6	1	5
	PC3. Ensure hygienic production of food by inspecting raw materials, ingredients, finished products etc for compliance to physical, chemical and microbiological procedures		5	2	3
	PC4. Pack products in appropriate packaging material, label and store them in designated area free from pests, flies etc.		10	4	6
	PC5. Clean, maintain and monitor food processing equipments periodically, using it only for the specified purpose		5	2	3
	PC6. Use safety equipment such as fire extinguisher, eye wash unit, first aid kit when required		10	4	6
	PC7. Follow housekeeping practices by having designated area for machines/tools		5	2	3
	PC8. Follow industry standards like GMP, HACCP and product recall		10	4	6
	PC9. Attend training on hazard management to understand type of physical, chemical and microbiological hazards		5	1	4
	PC10. Identify, document and report problems such as rodents and pests to management		5	1	4

	PC11. Conduct workplace checklist audit before and after work to ensure safety and hygiene		5	1	4
	PC12. Document and maintain raw material, process, packaging material to maintain the effectiveness of quality system		4	1	3
	PC13. Determine the quality of food using criteria such as odor, color, taste and best before date and take immediate measures to prevent spoilage		5	2	3
	PC14. Store raw materials, finished products and allergens separately to prevent cross contamination		5	2	3
	PC15. Label raw materials and finished products and store them in different storage areas according to safe food practices		5	2	3
	PC 16. Follow stock rotation based on FEFO/FIFO		10	4	6
			100	35	65