

Model Curriculum

Pickle Making Technician

SECTOR: FOOD PROCESSING
SUB-SECTOR: FRUITS & VEGETABLES
OCCUPATION: PROCESSING
REF ID: FIC/Q0102, 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

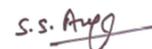
MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: **'Pickle Making Technician'** No. **'FIC/Qo102, 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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Pickle Making Technician

CURRICULUM / SYLLABUS

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

Program Name	Pickle Making Technician		
Qualification Pack Name & Reference ID. ID	FIC/Q0102, v1.0		
Version No.	1.0	Version Update Date	04/09/2018
Pre-requisites to Training	Preferably Class 8 and 2-3 years' experience in pickle making unit		
Training Outcomes	After completing this programme, participants will be able to: <ul style="list-style-type: none"> • prepare and maintain work area and process machineries for pickle making, • prepare for pickle making, • make pickle, • complete documentation and record keeping related to pickle making, • apply food safety and hygiene standards related to pickle making. 		

This course encompasses 5 out of 5 National Occupational Standards (NOS) of “Pickle Making Technician” Qualification Pack issued by “Food Industry Capacity and Skill Initiative”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	Introduction to Training Program and Overview of Food Processing Industry Theory Duration (hh:mm) 02:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code Bridge Module	<ul style="list-style-type: none"> Define food processing List the various sub sectors of food processing industry Define fruits and vegetables processing List the methods of processing fruits and vegetables List the various units within a pickle manufacturing plant State the methods of testing pickle for accepted quality standards 	
2	Organizational Standards and Norms Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code FIC/N0107	<ul style="list-style-type: none"> State the roles and responsibilities of a pickle making technician State how to conduct yourself at the workplace State the personal hygiene and sanitation guidelines State the food safety hygiene standards to follow in a work environment 	Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual
3	Prepare and Maintain Work Area and Process Machineries for pickle making	<ul style="list-style-type: none"> State the materials and equipment used in the cleaning and maintenance of the work area State the common detergents and sanitizers used in cleaning work area and machineries State the methods of cleaning and sanitization 	Washer, Peeler, Vegetable Cutter/Slicer, Blender, Packaging Machine, Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 30:00 Corresponding NOS Code FIC/N0105	<ul style="list-style-type: none"> Perform the process of preparing the work area for scheduled production Describe the functions to be carried out before starting production State the different types of maintenance procedures Conduct minor repairs and faults in process machineries Prepare the machines and tools required for production 	Masks, Sanitizer, Food Safety Manual
4.	Prepare for Pickle Making Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code FIC/N0106	<ul style="list-style-type: none"> Plan the production order Calculate the various raw materials that may be required Calculate the packing material and the finished product Calculate the process time required for the production Check the conformance of raw material to the company standards 	Washer, Peeler, Vegetable Cutter/Slicer, Blender, Packaging Machine, Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual
5.	Pickle Making Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 40:00 Corresponding NOS Code FIC/N0107	<ul style="list-style-type: none"> Perform a check if all the machineries are clean and in good working conditions Demonstrate assembling of all components of machines Perform a pre check on all machineries Demonstrate receiving of the fruits and vegetables Demonstrate sorting and grading of fruits and vegetables Demonstrate the peeling and slicing of fruits and vegetables Demonstrate the preparation of brine solution Demonstrate the curing of fruits and vegetables 	Cleaning Machine, Grinding Machines, Hydroclones, Sieving Machine, Conveyor, Drying Machine, 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
		<ul style="list-style-type: none"> • Demonstrate the packaging and analyze the quality of the finished product • Demonstrate cleaning the machineries used with recommended sanitizers following CIP (clean-in-place) procedure • Demonstrate cleaning the equipment and tools used using recommended cleaning agents and sanitizers 	
6.	<p>Complete Documentation and Record Keeping Related to Pickle Making</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 05:00</p> <p>Corresponding NOS Code FIC/N0108</p>	<ul style="list-style-type: none"> • State the need for documenting and maintaining records of raw materials, processes and finished products • State the method of documenting and recording the details of raw material to final finished product • Demonstrate the process of documenting records of production plan, process parameters, and finished products 	Food Safety Manual, Log Books.
7.	<p>Food Safety, Hygiene and Sanitation for Processing Food Products</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 35:00</p>	<ul style="list-style-type: none"> • State the importance of safety, hygiene and sanitation in the baking industry • Apply the industry standards to maintain a safe and hygiene workplace • Apply HACCP principles to eliminate food safety hazards in the process and products • Apply safety practices in the work area 	Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth Covers, Sanitizer, Food Safety Manual ,Log Books etc.

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 Plan and schedule 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) 10:00 Corresponding NOS Code FIC/N0108	<ul style="list-style-type: none"> Identify parts of the computer Use the computer keyboard effectively to type Use ERP effectively to record day-to-day activities Use the word processor effectively Use the spreadsheet application effectively Use the computer to document day-to-day activities 	Computer/Laptop
	Total Duration 240:00 Theory Duration 90:00 Practical Duration 150:00	Unique Equipment Required: Cleaning Machine, Grinding Machines, Hydroclones, Sieving Machine, Conveyor, Drying Machine, 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: “Pickle Making Technician” mapped to Qualification Pack: “FIC/Q0102, 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/Q0102”, 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	B.Sc (home Sc) /B.Tech/BE in Food Technology or Food Engineering
4a	Domain Certification	Certified for Job Role: “Pickle making Technician” mapped to QP: “FIC/Q0102, v1.0”. Minimum accepted score is 80%
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	B.Sc (home Sc) /B.Tech/BE in Food Technology or Food Engineering with 2 years of hands on experience in Pickle Making Unit or Fruits/Vegetables Processing

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Pickle Making Technician
Qualification Pack	FIC/Q0102, v1.0
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

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
1. FIC/Q0105: Prepare and maintain work area and process machineries for pickle making	PC.1 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		10	3	7
	PC3. Dispose waste materials as per defined SOPs and industry requirements		15	5	10
	PC4 Check the working and performance of all machineries and tools used for the pickle making process such as washer, peeler, vegetable cutter/slicer, blender, packaging machines, etc.		15	5	10
	PC5. Clean the machineries and tools used with approved sanitizers following SOP		15	5	10
	PC6. Place the necessary tools required for process		5	2	3
	PC7. Attend the minor repairs/ faults of all machines, if required		15	5	10
			100	35	65
2. FIC/Q0106: Prepare for pickle making	PC1. Read and understand the production order from supervisor	100	10	4	6
	PC2. Check the availability of raw materials, packaging materials, equipment availability and manpower		5	2	3
	PC3. Support in planning production sequence by <ul style="list-style-type: none"> • Grouping products from same variety of raw material • Grouping products that require same process • Selecting raw materials that do not impact the quality of the other • Avoiding CIP after each product • Using the same equipment and machinery for various products • Planning maximum capacity utilization of machineries • Considering the process time for each product 		15	5	10

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
	<ul style="list-style-type: none"> • Planning efficient utilization of resources/manpower • Prioritizing urgent orders 				
	PC4. Calculate the batch size based on the production order and machine capacity		5	2	3
	PC5. Calculate the raw material requirement (considering the process loss) to produce the required quantity of finished		5	2	3
	PC6. Calculate the raw materials, packaging materials and manpower requirement for completing the order.		5	2	3
	PC7. Ensure the working and performance of each equipment required for the process		7	2	5
	PC8. Calculate the process time for effective utilization of machineries		7	2	5
	PC9. Plan batch size considering full capacity utilization of machineries		3	1	2
	PC10. Plan to utilize machineries for multiple products without affecting the quality of the finished products, and to optimize production and save energy		3	1	2
	PC11. Allot responsibilities/work to assistants and workers		5	1.5	3.5
	PC12. Refer to the process chart/ product flow chart/formulation chart for product(s) produced		3	1	2
	PC13. Weigh the raw materials required for the batch		5	1	4
	PC14. Sharpen and change blades of cutting/slicing machine as required for the product produced		3	1	2
	PC15. Check the conformance of raw material quality to organisation standards, through physical analysis and by referring the quality analysis report from the supplier/ internal lab analysis report		10	4	6
	PC16. Ensure working and performance of required machineries and tools		7	3	4

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
	PC17. Keep the tools accessible to attend repairs/faults in case of breakdown		2	0.5	1.5
			100	35	65
3. FIC/Q0107: Pickle making	PC1. Receive vegetables from the supplier/vendor, check weight and check quality through physical parameters such as appearance, colour, texture, maturity, etc.	100	3	1.5	1.5
	PC2. Pump water into the washing tank and control water level, dump vegetables into the washing tank for washing or wash and rinse the vegetables manually		2	0.5	1.5
	PC3. Start the ladder conveyor to lift the vegetables from the washing tank and to transfer to the conveyor		2	0.5	1.5
	PC4. Open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on vegetables for rinsing		2	0.5	1.5
	PC5. Control speed of drying line conveyor, control air temperature and fan speed/air flow and start conveyor to dry vegetables or start roller conveyor with rolling brushes for wiping and transfer vegetables to sorting line		3	1.5	1.5
	PC6. Start and adjust speed of sorting/inspecting line conveyor to remove damaged, blemished and rotten vegetables		3	1.5	1.5
	PC7. Dump the sorted vegetables in the peeling machine (depending on the type of vegetable), start the peeler machine and adjust the speed to remove the peel, pump water or open valve/spraying system to wash the peeled vegetables (or)		3	1.5	1.5
	PC8. Prepare lye solution by adding measured quantity of lye chemical and water into lye tank, turn valves to admit steam to heat lye solution, start conveyor and adjust speed to carry manually/mechanically into the lye tank, and pull out the basket after		3	1	2

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
	specified time following sop (lye peeling)				
	PC9. Observe vegetable emerging from lye peeling machine/lye tank to ensure removal of peel and open valves to drain excess lye solution		2	0.5	1.5
	PC10. Load the vegetables in the clutter/slicer machine, adjust controls to cut vegetables to required size, start machine, collect sliced vegetables from the discharge chute		4	1	3
	PC11. Start inspection line conveyor and control speed, transfer cut/ sliced vegetable on the conveyor belt, visually inspect sliced vegetables for conformance to organization standards and remove non-conforming materials from the line		3	1	2
	PC12. Open valve to admit measured quantity of water into steam jacketed kettle/tank, observe water gauge or designated mark for filled salt as per formulation and add into tank to prepare brine solution		2	0.5	1.5
	PC13. Start and control speed of the agitator of the steam jacketed kettle/tank, turn valves to set required pressure and open valve to admit steam to heat the solution following sop		4	1	3
	PC14. Observe pressure and temperature gauge, and regulate steam to maintain temperature, check brine solution using salinometer equipment to ensure conformance of its specifications to standards		4	1	3
	PC15. Open valve or start pump to transfer brine solution from mixing tank to storage or holding tanks for later use		1	0.5	0.5
	PC16. Start pump to transfer measured quantity of brine solution from storage tank/kettle to the curing drums, add measured quantity of cut/ whole vegetables, close with lid and allow to		4	1	3

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
	stand for specified time for curing/natural fermentation following				
	PC17. Mix the vegetables periodically either mechanically/manually for salt equilibrium, sample and check for acidity to ensure completion of fermentation		3	1	2
	PC18. Store cured vegetable following SOP until cured		6	2	4
	PC19. Refer to the work order and formulation for product/ batch		3	1	2
	PC20. Organize required raw material (cured vegetable), ingredients, spices, packaging material etc. from store and check it conformance to standards through physical parameters		3	1	2
	PC21. Remove cured vegetable from drums and transfer into the washing tank, pump water into tank to wash vegetables to remove excess salt, open valve to drain water, open valves of the high pressure spraying system for fresh water and adjust pressure to spray water on vegetables to remove excess salt		6	2	4
	PC22. Transfer washed vegetables to the pickle mixing machine, prepare spice mix as per formulation, add measured quantity of spice mixture and oil into the vegetables, adjust controls to set mixing speed and start machine to mix all the ingredients, check the quality of pickle and open valve to transfer pickle into container(for pickle in oil)		6	2	4
	PC23. Start conveyor and control speed to load cured and washed vegetable into the hopper of the filling machine(for pickle in brine)		3	1.5	1.5
	PC24. Set pickle and oil filling machine and vegetable and brine filling machine for filling quantity and volume, start packaging line conveyor and control		6	2	4

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
	speed to ensure containers are positioned under the filling nozzles of pickle/ vegetable and oil/ brine				
	PC25. Load lids and labels in automatic packaging machine, set date code. Start machine, control speed conveyor and observe filling of pickle and oil, vegetable and brine, ensure proper sealing and labelling of containers		4	2	2
	PC26. Check weight of the filled containers periodically for quantity of vegetable filled and volume of liquid filled to ensure its conformance to standards		3	1	2
	PC27. Observe filled container leaving machines to detect defects, check the weight of the finished product, sample and transfer to quality lab for analysis		3	1	2
	PC28. Pack the finished product into cartons and transfer to storage area manually or mechanically and store following organization standards		2	0.5	1.5
	PC29. Report discrepancies/concerns to department supervisor for immediate action		2	1	1
	PC30. Clean work area, machineries, equipment and tools using approved cleaning agents and sanitizers		4	1	3
	PC31. Attend minor repairs/faults of all machines (if any)		4	1	3
	PC32. Ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals		2	1	1
			100	35	65
4. FIC/Q0108: Complete documentation and record keeping related to pickle making	PC1. Document and maintain record of details of raw materials and packaging materials (name of raw materials, type and variety, vendor/supplier details, season, grown area, quantity, receiving date, supplier details, receiving date/date of manufacture, expiry date, supplier quality document, quality	100	10	6	4

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
	parameters of all raw materials, internal quality analysis report, etc.) as per organisation standards				
	PC2. Document and maintain record on observations (if any) related to raw materials and packaging materials		5	3	2
	PC3. Load the raw material details in ERP for future reference		5	3	2
	PC4. Verify the documents and track from finished products to raw materials, in case of quality concerns and during quality management system audits		5	3	2
	PC5. Document and maintain records of production plan with details (product details, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment)		10	6	4
	PC6. Document and maintain records of process details (type or raw material used, process parameters such as temperature, time, pressure, etc. as applicable) for entire production in process chart or production log for all products produced		15	9	6
	PC7. Document and maintain records of batch size, production yield, wastage of raw materials, energy utilization and final products produced		10	6	4
	PC8. Document and maintain record of observations (if any) or deviations related to process and production		5	3	2
	PC9. Load the production plan and process details in ERP for future reference		5	3	2
	PC10. Verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits		5	3	2
	PC11. Document and maintain records of finished products produced		3	2	1
	PC12. Document and maintain records of the finished products details (batch number, time of packing, date of manufacture, date of expiry, other label details, primary, secondary and tertiary		7	4	3

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
	packaging materials, storage conditions, etc.) as per organisation standard				
	PC13. Document and maintain record on observations or deviations (if any) related to finished products		5	3	2
	PC14. Load the finished product details in ERP for future reference		5	3	2
	PC15. Verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits		5	3	2
	Total		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, hairnets, masks, ear plugs, goggles, shoes, 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 process		10	4	6
	PC9. Attend training on hazard management to understand types of		5	1	4

		Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
	hazards such as physical, chemical and biological hazards and measures to control and prevent them				
	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, packaging material, process and finished products for the credibility and effectiveness of the food safety control system		4	1	3
	PC13. Determine the quality of food using criteria such as odour, appearance, taste and best before date, and take immediate measures to prevent spoilage		5	2	3
	PC14. Store raw materials, finished products, allergens separately to prevent cross-contamination		5	2	3
	PC15. Label raw materials and finished products and store them in designated 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