

Model Curriculum

Soya Beverage Making Technician

SECTOR: FOOD PROCESSING
SUB-SECTOR: SOYA FOOD
OCCUPATION: PROCESSING
REF ID: FIC/Q8003, 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: 'Soya Beverage Making Technician' QP No. 'FIC/Q8003, 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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Soya Beverage Making Technician

CURRICULUM / SYLLABUS

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

Program Name	Soya Beverage Making Technician		
Qualification Pack Name & Reference ID. ID	FIC/Q8003, v1.0		
Version No.	1.0	Version Update Date	04/09/2018
Pre-requisites to Training	Preferably Class 10 and 0-1 year experience in a soya processing 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 soya beverage production • Produce soya beverage following specification and standards of the organization • Document and maintain records related to soya beverage production • Apply food safety and hygiene standards at work. 		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Soya Beverage 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"> Introduce each other and build rapport with fellow participant and trainer Define food processing List the various sub sectors of food processing industry List the various units within a soya beverage manufacturing plant State the methods of testing soya milk produced for accepted quality standards 	
2	Organizational Standards and Norms Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 12:00 Corresponding NOS Code FIC/N8008	<ul style="list-style-type: none"> State the roles and responsibilities of a soya beverage maker State how to conduct yourself at the workplace Apply the personal hygiene and sanitation guidelines Apply the food safety hygiene standards to follow in a work environment 	Protective Gloves, Head Caps, Aprons, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual
3	Prepare and maintain work area and process machineries for production of soya beverage Theory Duration (hh:mm) 15:00 Practical Duration (hh:mm) 30:00	<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 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 	Cleaning Machines, Hopper, Soya Bean Grinding Machine, Cooking Machine, Filter, Centrifuge, Pasteurizer, Homogenizer, Packaging Machine, Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code FIC/N8007	<ul style="list-style-type: none"> Prepare the machines and tools required for production 	
4.	Carry out production of soya beverage Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 40:00 Corresponding NOS Code FIC/N8008	<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 Demonstrate the setting of different parameters of cleaning machine and feeding soya beans in the hopper to remove impurities Demonstrate setting of different parameters of conditioning bins State the various steps involved in the processing of soya bean Analyze the working of the various machineries involved in preparation of soya milk Perform the dehulling of soya bean by using dehulling machine Demonstrate the use of soya bean grinding machine to produce slurry Demonstrate the use of cooking machine Demonstrate the use of soya milk filtering machine to separate the soya fibers from slurry Check the quality of the finished product and package the 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 	Cleaning Machines, Hopper, Soya Bean Grinding Machine, Cooking Machine, Filter, Centrifuge, Pasteurizer, Homogenizer, Packaging Machine, Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual
5.	Complete documentation and record keeping related to production of soya beverage Theory Duration	<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 	Food Safety Manual, Log Books.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 13:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code FIC/N8003	plan, process parameters, and finished products during the production of soya milk	
6.	Food Safety, Hygiene and Sanitation for Packaging Food Products Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 35:00 Corresponding NOS Code FIC/N9001	<ul style="list-style-type: none"> State the importance of safety, hygiene and sanitation in the soya 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.
7.	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 	
8.	IT Orientation Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm)	<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 	Computer/Laptop

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	20:00 Corresponding NOS Code FIC/N8003	<ul style="list-style-type: none"> Use the computer to document day-to-day activities 	
	Total Duration 240:00 Theory Duration 88:00 Practical Duration 152:00	Unique Equipment Required: Cleaning Machines, Hopper, Soya Bean Grinding Machine, Cooking Machine, Filter, Centrifuge, Pasteurizer, Homogenizer, Packaging Machine, Protective Gloves, Head Caps, Lab Coat, 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: “Soya Beverage Making Technician” mapped to Qualification Pack: “FIC/Q8003, 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/Q8003”, 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"> • M.Sc/M.Tech/ME in Food Technology or Food Engineering with 1-2 years of hands on experience in a soya processing industry, or • B.Sc (home Sc) /B.Tech/BE in Food Technology or Food Engineering with 2-3 years of hands on experience in a soya processing industry, or • Diploma in Dairy Technology or Food Engineering (dairy) with 4 years of hand on experience in a soya processing industry.
4a	Domain Certification	Certified for Job Role: “Soya Beverage Making Technician” mapped to QP: “FIC/Q8003, 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	<ul style="list-style-type: none"> • M.Sc/M.Tech/ME in Dairy Technology or Food Engineering with 1-2 years of hands on experience in a soya processing industry, or • B.Sc (home Sc) /B.Tech/BE in Dairy Technology or Food Engineering with 2-3 years of hands on experience in soya processing industry, or • Diploma in Dairy Technology or Food Engineering (dairy) with 4 years of hand on experience in a soya processing industry.

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Soya Beverage Making Technician
Qualification Pack	FIC/Q8003, v1.0
Sector Skill Council	Food Processing

Guidelines for Assessment:

- 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
- The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
- Assessment will be conducted for all compulsory NOS, as well as the selected elective NOS/set of NOS.
OR
- Assessment will be conducted for all compulsory NOS, as well as the selected optional NOS/set of NOS.
- Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below)
- Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criteria
- To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the Assessment.
- In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Assessable outcomes	Assessment criteria for outcomes	Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
1. FIC/N8007 (Prepare and maintain work area and process machineries for production of soya beverage)	PC1. clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	100	15	5	10
	PC2. ensure that the work area is safe and hygienic for food processing		20	8	12

	PC3. dispose waste materials as per defined SOPs and industry requirements		15	6	9
	PC4. check the working and performance of all machineries and tools used for production of soya beverage such as cleaning machineries, soya bean grinding machine, cooking machine, filter, centrifuge, pasteurizer, homogenizer, packaging machines etc.		20	8	12
	PC5. clean machineries and tools used with recommended sanitizers following the SOP		10	4	6
	PC6. place the necessary tools required for process		5	1	4
	PC7. attend to the minor repairs/ faults of all machines, if required		15	3	12
			100	35	65
2. FIC/N8008 (Carry out production of soya beverage)	PC1. receive raw materials (soya bean) from suppliers/vendors/store and check weight	100	2	0.5	1.5
	PC2. fix/change screens of the cleaning machines, set controls parameters, dump raw material in the feed hopper and start machine to remove impurities like dirt, dust, stones etc		4	1.5	2.5
	PC3. set controls like temperature, pressure,		4	1.5	2.5

	moisture content etc of tempering/conditioning bin following sop, open valves to allow steam to heat raw material for conditioning			
	PC4. adjust clearance between rollers of soya bean dehulling machine, speed of aspirator fan, speed of sifter/shaker to remove and separate hull from raw material to produce dehulled soya bean	5	2	3
	PC5. refer work order from the supervisor, weigh dehulled soya bean for the batch and transfer into container/tank	2	1	1
	PC6. weigh chemical (like sodium-bi-carbonate), measure water and prepare soaking solution (sodium-bi-carbonate solution) following sop	2	0.5	1.5
	PC7. open valves or start pump (or) manually add soaking solution into soya bean for soaking, open drain valve of tank or tilt container to drain excess water after soaking for specified time	3	1	2
	PC8. transfer soaked soya bean in the feed hopper of the soya bean grinding machine, start pump or open valves to add measured quantity of	3	1	2

	water to the soya bean in the feed hopper			
	PC9. set controls like speed of soya bean grinding machine, start machine and open chute to allow soya bean along with water into the grinding machine to grind into creamy soya bean concentrate	4	1.5	2.5
	PC10. open outlets of grinding machine to collect soya bean concentrate into tank/container and soya fiber residue (okara) in disposal bin (or)	3	1	2
	PC11. set controls like temperature speed, pressure etc of soya bean grinding machine, open valves to allow steam, monitor dials to control and maintain steam, start machine and open chute to allow measured quantity of soaked soya bean and water to grind into slurry	4	1.5	2.5
	PC12. set controls like temperature, pressure, time etc of cooking machine (in batch process) or steam jacketed pipes of cooking line (in continuous process), manually transfer soya bean concentrate into the cooker and close cooker (or) open valve/start	4	1.5	2.5

	pump to allow to pass through pipes			
	PC13. open valves to allow steam into the cooking machine/cooking line, observe pressure gauge, dials to monitor, control and maintain process parameters, confirm specified temperature has been achieved, close steam inlet valve, check pressure gauge to confirm pressure is completely released, open outlet valve to transfer cooked soya slurry into tank/container	4	1.5	2.5
	PC14. set controls like temperature of vacuum chamber, start machine and open valves to transfer hot soya bean concentrate into vacuum chamber to cool to specified temperature under vacuum	3	1	2
	PC15. set controls like speed/rotation of centrifuge, open valves to allow soya bean concentrate into the centrifuge and start machine to separate milk and soya fiber residue (or)	3	1	2
	PC16. open valves to allow soya bean concentrate to pass through screw press/soya milk filter machine, turn wheel or press button to	3	1	2

	apply pressure manually or mechanically to extract soya milk (batch process)				
	PC17. collect the filtered/clarified smoother and thinner soya milk in collection tank for further processing		2	0.5	1.5
	PC18. open valves or start pump to transfer measured quantity of soya milk into blending tank		2	0.5	1.5
	PC19. open valves or start pump to allow measured quantity of water into the soya milk in the blending tank, set controls like speed of blender and start machine to mix clarified soya milk and water to standardize soya milk to desired protein content		3	1	2
	PC20. measure ingredients like sugar/sugar syrup, cocoa powder, colour, flavour, fortifying agents (like vitamins, minerals) etc following formulation, transfer into soya milk in blending tank (or) transfer ingredients into small mixing tank, start stirrer to mix the ingredients uniformly to prepare the flavor mix		5	2	3
	PC21. start pump to transfer flavour mix into soya milk in blending tank, set controls like speed,		5	2	3

	<p>mixing time of blender and start blender for uniform mixing of ingredients to make frothy soya beverage mixture</p>				
	<p>PC22. start pump to transfer soya beverage mixture into storage tank, set controls like speed of agitator, temperature of tank (refrigeration temperature) and start agitator to keep the beverage mixed uniformly maintaining temperature</p>		3	1	2
	<p>PC23. set controls like temperature, pressure, time etc of pasteurizer, open valves to allow steam, monitor pressure gauge to control and maintain steam pressure, open valves or start pump to pass flavoured soya beverage through pasteurizer to sterilize soya beverage</p>		4	1.5	2.5
	<p>PC24. set temperature of chilling line, open valves to allow pasteurized soya beverage to pass thorough chilling line to cool the beverage</p>		3	1	2
	<p>PC25. set controls like pressure of the homogenizer, start homogenizer and open valves or start pump to allow soya beverage to pass through</p>		4	1	3

	homogenizer to break fat and give uniform smoother consistency				
	PC26. set controls of sterile tank temperature, open valves or start pump to collect the homogenized soya beverage in sterile tank, monitor gauge and maintain temperature until transferring soya beverage to packaging line		3	1	2
	PC27. load packaging materials and labels in packaging machine, set packing quantity and labeling details, start machine to pack finished product(s)		2	0.5	1.5
	PC28. sample products produced from production line and packed product following sop, and transfer to quality lab for analysis		2	1	1
	PC29. place packed and labeled products in cartons and transfer to storage area and store maintaining storage conditions following sop		2	0.5	1.5
	PC30. report discrepancies/concerns to department supervisor for immediate action and implement the suggested corrective action		2	1	1
	PC31. clean the work area, equipment and tools using recommended		2	0.5	1.5

	cleaning agents and sanitizers				
	PC32. attend minor repairs/faults (if any) of all components and machines		2	0.5	1.5
	PC33. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals		1	0.5	0.5
			100	35	65
3. FIC/N8009 (Complete documentation and record keeping related to soya beverage making)	PC1. document and maintain record of details on raw materials and packaging materials such as raw material variety, name of ingredients used, vendor/supplier details, receiving date, date of manufacture, expiry date, quality parameters of raw materials and ingredients/chemicals, supplier quality document, internal quality analysis report etc. as per organisation standards	100	10	6	4
	PC2. document and maintain record on observations (if any) related to raw materials and packaging materials		5	3	2

PC3. load the raw materials details in ERP for future reference	5	3	2
PC4. verify the documents and track from finished product 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 such as product details, equipment and machinery details, efficiency and capacity utilization of equipment	10	6	4
PC6. document and maintain records of process details such as raw material variety, process parameters (temperature, pressure, time etc. as applicable) for entire production and packaging in process chart or production log for product 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	5	3	2

	related to process and production				
	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 process details and raw materials, in case of quality concerns and for quality management system audits		5	3	2
	PC11.document and maintain records of the various flavours of soya beverage produced		5	3	2
	PC12.document and maintain records of the finished products details such as 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 organisation standards		5	3	2
	PC13.document and maintain record of 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
			100	60	40
4. FIC/N9001 (Ensure food safety, hygiene and sanitation for processing food products)	PC1. comply with food safety and hygiene procedures followed in the organisation	100	5	3	2
	PC2. ensure personal hygiene by use of gloves, hairnets, masks, ear plugs, goggles, shoes, etc.		5	1	4
	PC3. ensure hygienic production of food by inspecting raw materials, ingredients, finished products, etc. for compliance to physical, chemical and microbiological parameters		5	1	4
	PC4. pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations		10	2	8
	PC5. clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose		5	2	3

PC6. use safety equipment such as fire extinguisher, first aid kit and eye-wash station when required	10	2	8
PC7. follow housekeeping practices by having designated area for materials/tools	5	2	3
PC8. follow industry standards like GMP and HACCP and product recall process	10	4	6
PC9. attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control and prevent them	5	2	3
PC10. identify, document and report problems such as rodents and pests to management	5	2	3
PC11. conduct workplace checklist audits before and after work to ensure safety and hygiene	5	2	3
PC12. document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system	5	2	3
PC13. determine the quality of food using criteria such as odour, appearance, taste	5	2	3

	and best before date, and take immediate measures to prevent spoilage				
	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	3	2
	PC16. follow stock rotation based on FEFO/ FIFO		10	3	7
			100	35	65