

Model Curriculum

Fish & Sea Food Processing Technician

SECTOR: FOOD PROCESSING
SUB-SECTOR: FISH AND SEA FOOD
OCCUPATION: PROCESSING
REF. ID: FIC/Q4001, VERSION 1.0
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: **'Fish and Seafood Processing Technician'** QP No. **'FIC/Q4001, NSQF Level 4'**

Date of Issuance: **December 31, 2015**

Valid up to: **December 30 2016**

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

Malika Verma

Authorised Signatory
(Food Industry Capacity and Skill Initiative)

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Fish and Seafood Processing Technician

CURRICULUM / SYLLABUS

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

Program Name	Fish and Sea Food Processing Technician		
Qualification Pack Name & Reference ID.	FIC/Q4001, VERSION 1.0		
Version No.	1.0	Version Update Date	31/12/15
Pre-requisites to Training	Preferably class5th (Normal literacy of reading, writing and understanding) and 2-3 year experience in fish processing		
Training Outcomes	<p>The programme will help in building the following key competencies amongst the learner:</p> <ul style="list-style-type: none"> • Process all types of fish and seafood manually or mechanically to achieve the desired quality as set by the organization; • Operate the machineries/equipment for processing fish and seafood; • Plan, organize, and prioritize production as per schedule; • Follow and maintain food safety and hygiene in the work environment. 		

This course encompasses 5 out of 5 National Occupational Standards (NOS) of “Fish and Sea Food Processing Technician” Qualification Pack FIC/Q4001, VERSION 1.0 issued by issued by Food Industry Capacity and Skill Initiative.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Introduction to the training program</p> <p>Theory Duration (hh:mm) 01:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> Introduce each other and build rapport with fellow participants and the trainer 	White/Black board/ Chart paper, Markers/ computer and projector,
2	<p>Food Processing Industry</p> <p>Theory Duration (hh:mm) 02:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> List the various sub-sectors of food processing industry Define food processing 	White/Black board/ Chart paper, Markers/ computer and projector, Trainer’s Guide, Student Handbook
3	<p>Fish and Seafood Processing</p> <p>Theory Duration (hh:mm) 05:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code FIC/N4001</p>	<ul style="list-style-type: none"> Describe the fisheries industry in India List the various types of fish and seafood products State the methods of processing fish and seafood Explain the different methods of fish and seafood processing 	White/Black board/ Chart paper, Markers/ computer and projector, Trainer’s Guide, Student Handbook
4	<p>Organizational Standards and Norms</p> <p>Theory Duration (hh:mm) 06:00</p> <p>Practical Duration (hh:mm) 00:00</p>	<ul style="list-style-type: none"> State the roles and responsibilities of a fish and seafood processing technician State how to conduct yourself at a workplace State the personal hygiene and sanitation guidelines State the food safety hygiene standards to follow in a work environment 	White/Black board/ Chart paper, Markers/ computer and projector, Trainer’s Guide, Student Handbook

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code FIC/N4001		
5	<p>Preparation and Maintenance of Work Area</p> <p>Theory Duration (hh:mm) 06:00</p> <p>Practical Duration (hh:mm) 12:30</p> <p>Corresponding NOS Code FIC/N4001, FIC/N4002, FIC/N4003, FIC/N9001</p>	<ul style="list-style-type: none"> Identify the different equipment used in the fish and seafood processing State the materials and equipment used in cleaning and maintenance of the work area and machineries State the cleaning processes used to clean the work area Describe how to dispose waste as per organizational standards Demonstrate the use of different equipment used in fish and seafood processing 	<p>Filtering machine, Scaling machine, Shelling machine, Slitting machine, Grounding machine, Opening machine, Thermoformers, Moulders, Heat sealers, Can making equipment, Can closers/ sealers, Seam testers, Fillers of all type, Cutting / slitting / trimming equipment, Typing / sieving/ stappling equipment, Closing / sealing equip, Form / fill/ seal equip, Cappers/ crumpers/ hooders, Wrappers, Cartoners, Multipackers, Bundlers, Shrink wrappers and tunnels, Labellers, Coding equipment, Check weighers, Metal detection equipment, Level checking equipment, Code/ lable inspecting equipment, Palletisers, Bottle spotters, Aligners, Container cleaning/ washing/ drying systems, Accumulator/ collectors</p>
6	<p>Food Microbiology</p> <p>Theory Duration (hh:mm) 06:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code FIC/N4002</p>	<ul style="list-style-type: none"> State the types of food microbes State the causes for food spoilage State the process for food spoilage State the criteria to check food spoilage State the need for food preservation State the different types of food preservation processes 	<p>White/Black board/ Chart paper, Markers/ computer and projector, Trainer Guide, Student Handbook, demonstrative charts and samples of fresh and spoiled fish and sea-food.</p>
7	<p>Preparation for Execution of Fish and Seafood Processing</p> <p>Theory Duration (hh:mm) 07:00</p>	<ul style="list-style-type: none"> List the different varieties of fish and seafood that are processed State the quality parameters for raw materials to be processed Describe the quality assessment methods based on the physical parameters State the various units of measurement used in the food 	<p>Filtering machine, Scaling machine, Shelling machine, Slitting machine, Grounding machine, Opening machine, Thermoformers, Moulders, Heat sealers, Can making equipment, Can closers/ sealers, Seam testers, Fillers of all type, Cutting / slitting / trimming equipment,</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code FIC/N4002, FIC/N4003, FIC/N9001</p>	<p>processing industry</p> <ul style="list-style-type: none"> Calculate the requirement of raw materials for desired quantity of finished product List the types and categories of packaging materials used for processed fish and seafood State the laws and regulations related to product packaging and labelling State the storage requirements for raw materials and finished products Determine the quality of food and intake measures to prevent spoilage Follow stock rotation based on FIFO/FEFO Describe the refrigeration and cold storage facility used for fish and seafood processing Describe the storage conditions for all varieties of fish and seafood State the storage procedures for raw materials and processed food State the documenting procedures for packaging and storing Plan the production schedule as per organizational standards and instructions Support in planning production sequence Organize for raw material, packaging materials, manpower, equipment, and machineries for the scheduled production 	<p>Typing / sieving/ stapling equipment, Closing / sealing equip, Form / fill/ seal equip, Cappers/ crumpers / hooders, Wrappers, Cartoners, Multipackers, Bundlers, Shrink wrappers and tunnels, Labellers, Coding equipment, weighing scale, Metal detection equipment, Level checking equipment, Code/ lable inspecting equipment, Palletisers, Bottle spotters, Aligners, Container cleaning/ washing/ drying systems, Accumulator/ collectors, refrigerator</p>
8	<p>Execution of Fish and Seafood Processing</p> <p>Theory Duration (hh:mm) 04:00</p> <p>Practical Duration (hh:mm) 30:00</p> <p>Corresponding NOS Code FIC/N4003</p>	<ul style="list-style-type: none"> Describe the process of receiving and handling raw materials State the process of grading and sorting varieties of fish and seafood State the methods of pre-processing fish and seafood Explain the methods of processing fish and seafood Demonstrate the process of cleaning the work area and machineries after production 	<p>White/Black board/ Chart paper, Markers/ computer and projector, Trainer Guide, Student Handbook, Filtering machine, Scaling machine, Shelling machine, Grounding machine, Opening machine, Thermoformers, Moulders, Heat sealers, Can making equipment, Can closers/ sealers, Seam testers, Fillers of all type, Cutting / slitting / trimming equipment, Typing / sieving/ stapling equipment, Closing / sealing</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
			equip, Form / fill/ seal equip, Cappers/ crumpers/ hooders, Wrappers, Cartoners, Multipackers, Bundlers, Shrink wrappers and tunnels, Labellers, Coding equipments, Check weighers, Metal detection equipment, Level checking equipment, Code/ lable inspecting equipment, Printing equipment, Palletisers, Bottle spotters, Aligners, Container cleaning/ washing/ drying systems, Accumulator/ collectors, Unloaders, stackers, Feeding/ orienting equipment, various types of fish and sea food
9	<p>Documentation and Record-Keeping</p> <p>Theory Duration (hh:mm) 03:00</p> <p>Practical Duration (hh:mm) 06:00</p> <p>Corresponding NOS Code FIC/N4004</p>	<ul style="list-style-type: none"> State the need for documenting and maintaining records of raw materials, process, and finished products State the method of documenting and recording the details of raw material to final finished product 	Board/Chart paper/ Laptop and Projector, Trainer Handbook, Participant handbook, etc.
10	<p>Food Safety, Hygiene, and Sanitation</p> <p>Theory Duration (hh:mm) 04:30</p> <p>Practical Duration (hh:mm) 10:30</p> <p>Corresponding NOS Code FIC/N9001</p>	<ul style="list-style-type: none"> State the importance of safety, hygiene, and sanitation in the fisheries industry Follow the industry standards to maintain a safe and hygienic workplace Follow HACCP principles to eliminate food safety hazards in the process and products Follow safety practices in the work area 	Board/Chart paper/ Laptop and Projector, Trainer Handbook, Participant handbook, etc., Sanitizers, Protective Gloves
11	<p>Professional Skills</p> <p>Theory Duration (hh:mm) 04:00</p> <p>Practical Duration (hh:mm) 06:30</p>	<ul style="list-style-type: none"> Undertake a self-assessment test Identify personal strengths and weaknesses Plan and schedule the work order Prevent potential problems from occurring Resolve issues and problems using acquired knowledge 	Board/Chart paper/ Laptop and Projector, Trainer Handbook, Participant handbook, etc.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code FIC/N4001	<ul style="list-style-type: none"> Identify control measures to solve issues Assess your strengths and weakness Work on your strengths and weaknesses 	
12	Core/Generic Skills Theory Duration (hh:mm) 03:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code FIC/N4001	<ul style="list-style-type: none"> Discuss task lists, schedules and activities with the supervisor Describe effective communication with the team members Question the supervisor in order to understand the nature of the problem and to clarify queries Listen attentively and comprehend the information given by the speaker Communicate clearly with the supervisor and cross department teams on the issues faced during process 	Board/Chart paper/ Laptop and Projector, Trainer Handbook, Participant handbook, etc.
13	IT Skills Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code Bridge Module	<ul style="list-style-type: none"> State the basic functionalities of a computer to perform day-to-day activities Use the computer keyboard effectively to type Use MS-Word effectively Use Excel for effective documentation and record-keeping 	Board/Chart paper/ Laptop and Projector, Trainer Handbook, Participant handbook, etc.
14	Field Visits Theory Duration (hh:mm) 08:00 Practical Duration (hh:mm) 20:00 Corresponding NOS Code FIC/N4001, FIC/N4003	<ul style="list-style-type: none"> Observe the factory location, layout, and safety aspects of fish and seafood processing unit Observe the various equipment and machineries used in the fish and seafood processing unit Observe the various processing techniques of the fish and seafood processing unit Observe the packaging materials and machineries used for processed food Observe the storage facilities for raw ingredients and finished products Observe the methods of cleaning and maintenance of work area and process machineries 	All the tools and equipment listed available must be available at the site of the field visit

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Observe the safety and hygiene guidelines followed in the processing area Observe the packaging and storage processes of finished products Observe the post-production cleaning and maintenance process followed in the industry Observe the documenting and recording procedures followed in the industry 	
15	<p>Revision</p> <p>Theory Duration (hh:mm) 04:00</p> <p>Practical Duration (hh:mm) 10:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> Recall the knowledge gained so far 	All the tools and equipment listed available must be available for revision
16	<p>Evaluation</p> <p>Theory Duration (hh:mm) 05:00</p> <p>Practical Duration (hh:mm) 15:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> Assess the participants on the knowledge gained so far Assess the participants on the knowledge and skills gained so far 	All the tools and equipment listed available must be available for evaluation
17	<p>Entrepreneurship</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 15:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> Get equipped to set-up and run a small business Explore the various avenues for business loans and financial assistance Evaluate various alternatives and select the best alternative for setting up the business Apply the concepts of accounting and make sound business decisions 	Board/Chart paper/ Laptop and Projector, Trainer Handbook, Participant handbook, etc.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>Total Duration 240:00</p> <p>Theory Duration 84:30</p> <p>Practical Duration 155:30</p>	<p>Unique Equipment Required: Scaling machine, Shelling machine, Grounding machine, Opening machine, Thermoformers, Moulders, Heat sealers, Can making equipment, Can closers/ sealers, Seam testers, Fillers of all type, Cutting / slitting / trimming equipment, Typing / sieving/ stapling equipment, Closing / sealing equip, Form / fill/ seal equip, Cappers/ crumpers/ hooders, Wrappers, Cartoners, Multipackers, Bundlers, Shrink wrappers and tunnels, Labellers, Coding equipments, Check weighers, Metal detection equipment, Level checking equipment, Code/ lable inspecting equipment, Printing equipment, Palletisers, Bottle spotters, Aligners, Container cleaning/ washing/ drying systems, Accumulator/ collectors, Unloaders, stackers, Feeding/ orienting equipment</p>	

Grand Total Course Duration: 240 Hours, 0 Minutes

Recommended OJT Hours: 90 Hours, 0 Minutes

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

Trainer Prerequisites for Job role: “Fish and Sea Food Processing Technician” mapped to Qualification Pack: “FIC/Q4001, VERSION 1.0”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “FIC/Q4001, VERSION 1.0”.
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	Minimum Educational Qualifications	<ul style="list-style-type: none"> B.Sc/B.Tech/BE in or Fisheries Science with at least 2 years of hand on experience in a Fish Processing Unit (marine/in-land)or M.Sc/M.Tech/ME in Fisheries Science or Fish Nutrition and Feed Technology or Food Technology or Food Engineering with at least 1 year of hand on experience in a Fish Processing Unit (marine/in-land)
4a	Domain Certification	Certified for Job Role: “Fish and Sea Food Processing Technician” mapped to QP: “FIC/Q4001, VERSION 1.0”. Minimum accepted score is 80% as per respective SSC guidelines.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “SSC/Q1402”. Minimum accepted score is 80% as per respective SSC guidelines.
5	Experience	<ul style="list-style-type: none"> B.Sc/B.Tech/BE in or Fisheries Science with at least 2 years of hand on experience in a Fish Processing Unit (marine/in-land)or M.Sc/M.Tech/ME in Fisheries Science or Fish Nutrition and Feed Technology or Food Technology or Food Engineering with at least 1 year of hand on experience in a Fish Processing Unit (marine/in-land)

Annexure: Assessment Criteria

Assessment Criteria for Fish and Sea Food Processing Technician	
Job Role	Fish and Sea Food Processing Technician
Qualification Pack	FIC/Q4001, VERSION 1.0
Sector Skill Council	Food Processing

Sr. No.	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	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4	Individual assessment agencies will create unique evaluation for skill practical for every student at each examination/training center based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% (overall)
6	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Sr. No.	NOS No.	NOS Name	Total Marks	Marks Allocation: Skills	Marks Allocation: Knowledge
1	FIC/N4001	Prepare and maintain work area and process machineries for processing fish and sea food	100	65	35
2	FIC/N4002	Prepare for execution of fish and sea food processing	100	65	35
3	FIC/N4003	Execution of fish and sea food processing	100	65	35
4	FIC/N4004	Complete documentation and record keeping related to processing of fish and sea food	100	40	60
5	FIC/N9001	Food safety hygiene and sanitation for processing food products	100	65	35
Total:			500	300	200
Percentage Weightage:			100	60%	40%
Minimum Pass% to qualify:					



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