Model Curriculum

QP Name: Seafood Processor

QP Code: FIC/Q4003

QP Version: 1.0

NSQF Level: 3.5

Model Curriculum Version: 1.0

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Training Parameters

Sector	Food Processing
Sub-Sector	Fish and Sea Food
Occupation	Processing-Fish and Seafood
Country	India
NSQF Level	3.5
Aligned to NCO/ISCO/ISIC Code	
Minimum Educational Qualification and Experience	1. 11th Grade pass OR 2.10th grade pass with 1 year of relevant experience in the Food Processing Industry OR 3. 8th-grade pass with 3 years of relevant experience in Food Processing Industry OR 4. Previous relevant Qualification of NSQF Level 3 with 1.5 years relevant experience in the Food Processing Industry OR 5. Previous relevant Qualification of NSQF Level 2.5 with 3 years of relevant experience in Food Processing Industry
Minimum Level of Education for Training in school	NA
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 years
Last Reviewed On	31-01-2024
Next Review Date	30-01-2027
NSQC Approval Date	31-01-2024
QP Version	1.0
Model Curriculum Creation Date	10-11-2023
Model Curriculum Valid Up to Date	30-01-2027
Model Curriculum Version	1.0
Minimum Duration of the Course	330 hours
Maximum Duration of the Course	780 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:

- Process all types of fish, seafood and value-added products manually or mechanically to achieve the desired quality as set by the organization
- Operate the machinery/equipment for processing fish, seafood and value-added products
- Plan, organize, and prioritize production as per schedule
- Follow and maintain food safety and hygiene in the work environment

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration (Hours)
FIC/N9026: Prepare for production **NOS Version No.: 1.0** **NSQF Level: 3**	**18**	**12**	**0**	**0**	**30**
Module 1: Introduction to the training program and overview of food processing industry	8	0	0	0	8
Module 2: Prepare work area and equipment	10	12	0	0	22
FIC/N4005: Carry out pre-processing of fish, seafood, and value-added products. **NOS Version No.: 1.0** **NSQF level: 3.5**	**30**	**60**	**0**	**0**	**90**
Module 3: Prepare for pre-processing of Fish, Seafood and Value-added products	10	20	0	0	30
Module 4: Perform sorting, grading, cleaning and gutting	10	20	0	0	30
Module 5: Prepare for value-added products	10	20	0	0	30
FIC/N4006: Implementing the processing of fish, seafood and value-added products **NOS Version No.: 1.0** **NSQF Level: 3.5**	**30**	**60**	**0**	**0**	**90**

NOS and Module Details	Theory	Practical	On-the-Job	On-the-Job	Total
Module 6: Perform cleaning, dressing and preserving fish, seafood and value-added products	10	20	0	0	30
Module 7: Carry out export of fish, seafood and value-added products	10	20	0	0	30
Module 8: Oversee product packaging, labelling and quality control	10	20	0	0	30
FIC/N9906 –Apply Food safety guidelines in Food Processing **NOS Version No.: 1.0** **NSQF Level: 3**	**10**	**20**	**0**	**0**	**30**
Module 9: Practice personal hygiene and follow Good Manufacturing Practices at workplace	5	10	0	0	15
Module 10: Apply food safety practices at workplace	5	10	0	0	15
DGT/VSQ/N0101 Employability Skills **NOS Version No.: 1.0** **NSQF Level: 2**	**12**	**18**	**0**	**0**	**30**
Module 11: Employability skills	12	18	0	0	30
Total Duration	**100**	**170**	**60**	**0**	**330**

Elective Modules

The table lists the modules and their duration corresponding to the elective NOS of the QP.

Elective 1: - Value added food products - mince-based products

NOS and Module Details	Theory Duration (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration (Hours)
FIC/N4007: Conduct processing of mince-based products **NOS Version No.:1.0** **NSQF Level: 3.5**	**30**	**60**	**0**	**0**	**90**
Module 12: Conduct processing of mince-based products	30	60	0	0	90
Total Duration	**30**	**60**	**0**	**0**	**90**

Elective 2: Value added food products
- extruded products

NOS and Module Details	Theory Duration (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration (Hours)
FIC/N4008: Conduct processing of extruded products **NOS Version No.:1.0** **NSQF Level: 3.5**	**30**	**60**	**0**	**0**	**90**
Module 13: Conduct processing of extruded products	30	60	0	0	90
Total Duration	**30**	**60**	**0**	**0**	**90**

Elective 3: - Value added food products - pickled products

NOS and Module Details	Theory Duration (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration (Hours)
FIC/N4009: Conduct processing of pickled products **NOS Version No.:1.0** **NSQF Level: 3.5**	**30**	**60**	**0**	**0**	**90**
Module 14: Conduct processing of pickled products	30	60	0	0	90
Total Duration	**30**	**60**	**0**	**0**	**90**

Elective 4: - Value added food products - battered and breaded or coated products

NOS and Module Details	Theory Duration (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration (Hours)
FIC/N4010: Conduct processing of battered and breaded or coated products **NOS Version No.:1.0** **NSQF Level: 3.5**	**30**	**60**	**0**	**0**	**90**
Module 15: Conduct processing of battered and breaded or coated products	30	60	0	0	90

Total Duration	**30**	**60**	**0**	**0**	**90**

Elective 5: Value added food products
**   - intermediate moisture products**

NOS and Module Details	Theory Duration (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration (Hours)
FIC/N4011: Conduct processing of intermediate moisture products NOS Version No.:1.0 NSQF Level: 3.5	**30**	**60**	**0**	**0**	**90**
Module 16: Conduct processing of intermediate moisture products	30	60	0	0	90
Total Duration	**30**	**60**	**0**	**0**	**90**

Module Details

Module 1: Introduction to the training program and overview of the food processing industry
Mapped to FIC/N9026, V1.0

Terminal Outcomes:

- Explain food processing and its sub-sectors
- Discuss fish, seafood and value-added product processing
- Discuss the roles and responsibilities of the individual in the job
- Describe the importance of personal hygiene and sanitation
- Discuss the opportunities available for fish, seafood processing technician – Value added product in the food processing industry

Duration: 08:00	Duration: 00:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Introduce each other and build rapport with fellow participants and the trainer • Define food processing • List the various sub-sectors of food processing industry • Describe the fisheries industry in India • List the various types of fish, seafood and value-added products available today • Explain the different methods of fish, Seafood and value-added product processing • Discuss the future trends and career growth opportunities available to technicians • Discuss the roles and responsibilities of the individual • Describe how to conduct yourself at the workplace	
Classroom Aids:	
White/Black board/ Chart paper, Markers/ computer and projector	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Prepare work area and equipment
Mapped to FIC/N9026, V1.0

Terminal Outcomes:

- Discuss the tasks to be performed to prepare for fish and seafood processing
- State the importance of maintaining tools and equipment effectively

Duration: *10:00*	Duration: *12:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the different equipment used in the fish, seafood and value-added product processing • List the materials and equipment used in cleaning and maintenance of the work area and machinery • Explain the cleaning processes used to clean the work area • Describe how to dispose off waste as per organizational standards	• Show how to clean the work area and 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 • Demonstrate the use of different equipment used in fish seafood processing

Classroom Aids:

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

Tools, Equipment and Other Requirements

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

Module 3: Prepare for preprocessing of fish, seafood and value-added products
Mapped to FIC/N4005, v1.0

Terminal Outcomes:

- List the tasks to be performed to prepare for fish, seafood and value-added products preprocessing
- Demonstrate the techniques to be followed to inspect and prepare the raw materials as per desirable standards

Duration: *10:00*	Duration: *20:00*
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
- List the different varieties of fish, seafood and value-added products that are processed - Explain the quality parameters for raw materials to be processed - State how to maintain equipment in good functioning condition without any damage or flaws - Detail the functioning of equipment and equipment's parts, if necessary - Explain calibration procedure of equipment and test apparatus to ensure accurate measurements and operations - List food safety regulations and guidelines such as Hazard Analysis and Critical points (HACCP) - Detail safe handling practices, like, handwashing, sanitization and cross-contamination prevention - State quality standards including appearance, freshness and taste standards - Discuss the importance of Swab Analysis of Hands, footwears etc. to maintain the microbial count. - Discuss the storage requirements for raw materials and the temperature limits - Describe the refrigeration and cold storage facility used for fish and seafood processing - Describe the storage conditions for all varieties of fish and seafood	- Calculate the requirement of raw materials for the desired quantity of finished product processing industry - Calculate the requirement of raw materials for the desired quantity of finished product - Support in planning production sequence - Demonstrate the storage procedures for raw materials and processed food

Classroom Aids:

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

Tools, Equipment and Other Requirements

Knives, Scissors, Scaling Tools, Cutting Boards, Gloves, Aprons and Smocks, Gutting Tools, Trays and Containers, Sensory evaluation equipment, Calipers, Brine Solution, Labelling materials, Magnifying Glasses, Scales, Buckets and tubs, Quality control forms, etc.

Module 4: Perform sorting, grading, cleaning and gutting
Mapped to FIC/N4005, v1.0

Terminal Outcomes:

- Describe activities involved in sorting, grading, cleaning and gutting processes
- Demonstrate the processes as per the organizational standards

Duration: *10:00*	Duration: *20:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- List various types of seafood, both whole and as individual parts (fillets, heads, tails, etc.) - State the criteria for grading seafood on freshness, appearance, and other quality factors - Detail the use of sensory evaluation and visual assessment - Illustrate how to sort seafood based on size, weight, or other criteria - Explain the process of cleaning seafood effectively, including scaling, skinning, and removing any unwanted parts like fins, heads, or shells - List the techniques for gutting and deveining seafood, particularly shellfish like shrimp, prawns, and crabs - Detail the importance of hygiene and safety procedures to prevent contamination - Explain how to manage waste generated during pre-processing, including the proper disposal of heads, shells, or other inedible parts - Illustrate sustainable seafood practices, such as avoiding overfished species and minimizing waste through responsible processing - Explain the concept of traceability and the importance of recording information about the source of seafood products and their processing history	- Demonstrate the handling of tools and equipment used for sorting, grading, cleaning, and gutting, including knives, scissors, cutting boards, and gloves - Walk through seafood specimens to help them identify types of seafood and their different parts - Perform exercises to develop sensory attributes like smell, colour, texture and visual appearance - Show how to perform scaling, skinning, and removing inedible parts - Demonstrate the technique to practice cleaning and gutting - Simulate waste management techniques in a responsible and hygienic manner - Show how to assess the quality standards of the product
Classroom Aids:	
White/Black board/ Chart paper, Markers/ computer and projector, Trainer's guide, student handbook	
Tools, Equipment and Other Requirements	
Knives, Scissors, Scaling Tools, Cutting Boards, Gloves, Aprons and Smocks, Gutting Tools, Trays and Containers, Sensory evaluation equipment, Calipers, Brine Solution, Labelling materials, Magnifying Glasses, Scales, Buckets and tubs, Quality control forms, etc.	

Module 5: Prepare for Value-added Products
Mapped to FIC/N4005, v1.0

Terminal Outcomes:

- Discuss the stages involved in the preprocessing of value-added products
- Demonstrate the tasks to be performed in the preprocessing stage of value-added products

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe what value-added products are, their importance in the seafood industry, and their role in increasing product value • Explain the significance of knowing market trends and consumer preferences related to value-added seafood products, including flavour profiles, packaging, and nutritional considerations • Discuss the importance of food safety and hygiene practices in the production of value-added products • Explain the product development process, including concept ideation, recipe development, and the creation of prototypes • List different ingredients and formulations used in value-added products, including binders, coatings, and flavorings • Detail packaging materials and techniques for value-added products, as well as labeling regulations and requirements • State quality control methods for value-added products, including sensory evaluation and adherence to quality standards • Discuss sustainable practices in product development and sourcing of ingredients	• Demonstrate the process of developing recipes for value-added products, including selecting ingredients, testing flavor profiles, and optimizing formulations • Demonstrate the process of handling various ingredients, including weighing, mixing, and blending • Show how to formulate value-added products and process them, including shaping, coating, and breading • Illustrate through exercises packaging of value-added products, including portioning, wrapping, and labeling according to regulatory standards • Show the usage of equipment and machinery relevant to value-added product production, such as battering machines, coating drums, and freezing equipment
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	

Cutting and Slicing Equipment, Peeling and Deveining Tools, Scaling Equipment, Filleting Equipment, Cleaning and Gutting Tools, Rinsing Stations, Measuring and Weighing Equipment, Chopping and Mincing Machines, Mixing and Blending Equipment, Food Processors and Grinders, Breading and Coating Equipment, Filtration Systems, Packaging Materials, Labeling Equipment, Specialized Equipment for specific tasks, like, extrusion machines for forming seafood sticks or battering machines for coating seafood, sanitization Equipment, etc.

Module 6: Perform cleaning, dressing and preserving fish, seafood and value-added products
Mapped to FIC/N4006, v1.0

Terminal Outcomes:

- Discuss the importance of cleaning, dressing and preservation methods of fish, seafood and value-added products
- Demonstrate the standard practice followed for cleaning, dressing and preservation methods

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Discuss ways to identify different species of seafood and value-added products commonly processed in the industry - Detail the anatomy of fish, seafood and value-added products including knowledge of fish species-specific structures and parts - Underline the importance of food safety and hygiene practices, including handling, storage, and personal hygiene - State the correct techniques for handling fish, seafood, and value-added products to prevent contamination and maintain quality - Explain the appropriate cleaning, dressing, and preservation methods for various species, considering their unique characteristics - Discuss various preservation methods, including chilling, freezing, salting, and smoking, and the science behind these methods - Specify how to assess the quality of fish, seafood, and value-added products based on visual, tactile, and sensory evaluation - Detail the sustainable practices in sourcing, including responsible fishing and aquaculture practices - State the significance of adhering to regulations and standards related to seafood processing, including labeling and traceability	- Demonstrate ways to handle fish and seafood, including inspecting for freshness and quality - Walk through dressing and cleaning of different species of fish and seafood, which may involve scaling, gutting, and filleting - Show activities involved in various preservation processes, such as chilling, freezing, salting, and smoking, with a focus on correct procedures - Demonstrate how to maintain a clean and hygienic workspace, including sanitation of tools, equipment, and work surfaces

Classroom Aids:
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook
Tools, Equipment and Other Requirements
Knives, Cutting Boards, Fish Scalers, Gutting Tools, Scissors, Tweezers, Gloves, Aprons and Smocks,   Safety Equipment, Refrigerators, Freezers, Ice or ice water baths, Salting tanks or containers, Smoking Chambers, Smokers, Containers, bags, Wrapping material, Dehydrators or Drying Equipment, Labelling equipment, PPE kit, Bins, Equipment for specific preservation methods, etc.

Module 7: Carry out export of fish, seafood and value-added products
Mapped to FIC/N4006, v1.0

Terminal Outcomes:

- Discuss the significance of export standards in the export of fish, seafood and value-added products
- Demonstrate ways to prepare export documents to comply with export regulations

Duration: *10:00*	Duration: *20:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Discuss international regulations and standards governing the export of seafood products, including labeling, traceability, and sanitary requirements - Detail quality standards for fish and seafood products, including size, weight, freshness, and presentation criteria - State ways to prepare export documentation, including certificates of origin, health certificates, and customs documentation - Illustrate the significance of traceability systems and how to maintain records for product traceability - State packaging and labeling requirements for different markets, including language, content, and format - Elucidate principles of maintaining the cold chain to preserve product quality during transportation - Clarify export logistics, including shipping, transportation, and handling procedures - Discuss customs procedures, tariffs, and import regulations in target countries - Define Incoterms (International Commercial Terms) to understand the responsibilities and obligations of buyers and sellers in international trade - List export financing options, such as letters of credit, export credit insurance, and trade finance	- Demonstrate preparation of export documentation, such as certificates and shipping labels - Walk through the process of maintaining the cold chain during product handling and transportation - Show how to check product labeling complies with the regulations of the target export market - Exemplify practicing customs procedures and documentation for export - Exhibit the application of incoterms in export transactions and understand their impact on shipping and delivery

Classroom Aids:

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

Tools, Equipment and Other Requirements

Digital Scales, Thermometers, Labeling software, Labeling printers, Boxes, crates, insulated containers, Data Loggers, sensors, Scales, Measuring Tapes, Measuring Devices, Barcode scanners, printers, etc.

Module 8: Oversee product packaging, labeling and quality control
Mapped to FIC/N4006, v1.0

Terminal Outcomes:

- Discuss the significance of export standards in the export of fish, seafood and value-added products
- Demonstrate ways to prepare export documents to comply with export regulations

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Discuss international regulations and standards governing the export of seafood products, including labeling, traceability, and sanitary requirements - Detail quality standards for fish and seafood products, including size, weight, freshness, and presentation criteria - State ways to prepare export documentation, including certificates of origin, health certificates, and customs documentation - Illustrate the significance of traceability systems and how to maintain records for product traceability - State packaging and labeling requirements for different markets, including language, content, and format - Elucidate principles of maintaining the cold chain to preserve product quality during transportation - Clarify export logistics, including shipping, transportation, and handling procedures - Discuss customs procedures, tariffs, and import regulations in target countries - Define Incoterms (International Commercial Terms) to understand the responsibilities and obligations of buyers and sellers in international trade - List export financing options, such as letters of credit, export credit insurance, and trade finance	- Demonstrate preparation of export documentation, such as certificates and shipping labels - Walk through the process of maintaining the cold chain during product handling and transportation - Show how to check product labeling complies with the regulations of the target export market - Exemplify practicing customs procedures and documentation for export - Exhibit the application of incoterms in export transactions and understand their impact on shipping and delivery

Classroom Aids:
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook
Tools, Equipment and Other Requirements
Digital Scales, Thermometers, Labeling software, Labeling printers, Boxes, crates, insulated containers, Data Loggers, sensors, Scales, Measuring Tapes, Measuring Devices, Barcode scanners, printers, etc.

Module 9: Practice personal hygiene and follow Good Manufacturing Practices at workplace
Mapped to FIC/N9906 v 1.0

Terminal Outcomes:

- Discuss the importance of personal hygiene and GMP at the workplace
- Demonstrate the tasks to be performed for ensuring personal hygiene and GMP practices at the workplace

Duration: *05:00*	Duration: *10:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Define hazards and risks - Recall the various types of health and safety equipment available in an organisation and the methods for obtaining them - Discuss the organisational health and safety policies and procedures - Discuss site relevant documented procedure for Personal Hygiene and Visitor/ Contractor rules - Explain work instructions at levels of employee inside a food manufacturing site - Ensure timed planning and participation of relevant training and awareness sessions on personal hygiene, GMP and related topics - Explain the importance of timely medical examination from a prescribed and authorized doctor and to comply with the guidelines of Schedule IV as described in Food Safety Standard Authority of India (FSSAI) guidelines - State how to follow a site relevant documented procedure and area wise work instructions for Good Manufacturing Practices (GMP) to be followed on the site - List validated Do's & Don'ts inside a food manufacturing firm - State process flow charts, HACCP summary plan and critical process parameters in each and respective areas of the production line - Explain how to identify the material requirements such as manufacturing equipment's, Utensils and other processing aids, cleaning chemicals, cleaning work instructions in all the relevant areas of manufacturing facility - Define the Allergens, their risks and the allergen requirements	- Demonstrate the steps to be performed for implementing good manufacturing practices (GMP) - Demonstrate how to follow work instructions at levels of employee inside a food manufacturing site and ensure that the relevant instructions are well communicated and being followed at the fixed timelines - Show how to fill data in daily monitoring checklist related to personal hygiene, food safety and GMP - Illustrate process to follow man and materials movement throughout the production facility, to restrict unwanted hazards to cross contaminate the products which are being manufactured in the facility - Show how to tag and number all the equipment, machinery, tools, and other processing aids to keep a proper traceability of the product being manufactured and handled at site - Demonstrate process of record keeping and documentation such as Daily Monitoring Sheets, Batch Traceability Records, machine records, product parameters, process control parameters etc.

• State the relevance of guidelines in manufacturing area and how training evaluation will be implemented • Explain the process of audits and ways to address the aspects of Good Manufacturing Procedures, personal hygiene and food safety	

Classroom Aids:

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

Tools, Equipment and Other Requirements

GMP format and guidelines, allergen manual, personal hygiene guidelines, etc.

Module 10: Apply food safety practices at the workplace
Mapped to FIC/N9906 v1.0

Terminal Outcomes:
- List the food safety practices at the workplace and the ways to implement them
- Demonstrate the steps to be followed to implement food safety procedures effectively

Duration: 05:00	Duration: 10:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the various types of health and safety hazards present in the environment • Discuss the possible causes of risk, hazard or accident at the workplace • Elucidate the standard practices and precautions used to control and prevent risks, hazards and accidents at the workplace • Explain requirements to maintain updated facilities, equipment and tool to minimize the risks associated with the products being handled at the site • State the importance of using protective equipment and clothing for specific tasks and work conditions • Discuss the role of organisational protocols in preventing accidents and hazards • Discuss the significance of various types of hazard and safety signs • Explain FSSAI Schedule IV requirements related to: Pest Control, Cleaning and Sanitation, Utilities, Waste Disposal, Prevention of Cross Contamination, allergen management, corrective action, preventive actions, food operation control etc. • Discuss the relevance of checking critical control points and product parameters • Explain importance of record keeping and documentation such as daily monitoring sheets, cleaning sheets, parameters etc. • Discuss how to report any food safety and GMP issue to supervisor, if any	• Apply appropriate techniques to deal with hazards safely and appropriately • Perform steps for checking critical control points and product parameters • Show how to record keeping and documentation such as daily monitoring sheets, cleaning sheets, parameters etc. • Demonstrate appropriate ways to respond to an accident situation or medical emergency promptly and appropriately. • Perform the steps to be followed during emergency and evacuation procedure.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Helmet, gloves, rubber mat, ladder, neon tester, leather or asbestos gloves, flame proof aprons, flame proof overalls buttoned to neck, cuff less (without folds) trousers, reinforced footwear,	

helmets/hard hats, cap and shoulder covers, ear defenders/plugs, safety boots, knee pads, particle masks, glasses/goggles/visors, hand and face shields, machine guards, residual current Devices, shields, dust sheets, respirator.

Module 11: Employability skills
Mapped to DGT/VSQ/N0101, v 1.0

Terminal Outcomes:

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

Duration: *12:00*	Duration: *18:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• 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 • 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	• 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.

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

Module 12: Conduct processing of mince-based products
Mapped to FIC/N4007, v1.0

Terminal Outcomes:

- Discuss the processing of mince-based products
- Demonstrate ways to prepare mince-based products

Duration: *30:00*	Duration: *60:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Define mince-based products and their types - Detail different fish and seafood varieties suitable for mincing - Specify the significance of considering quality, flavour, and texture in raw material selection - Discuss the importance of maintaining hygiene and food safety during the development process - State the product development principles for recipes - List the ingredient combinations for desired textures and flavors - State the techniques for seasoning and enhancing the flavours profile of mince-based products - Discuss how to handle common issues during formation - Define the label requirements for mince-based products - Illustrate the significance of compliance with regulations and standards in product development	- Demonstrate use of mincing techniques for achieving desired mince consistency - Walk through the techniques of experimenting with different ingredients and proportions - Show how to apply seasoning and flavor enhancement techniques to balance flavors - Exhibit how to control textures using various methods and use of binding agents to achieve desired texture - Demonstrate ways to adjust formulations based on sensory evaluation - Illustrate techniques for assessing the quality, with respect to, texture, flavor and appearance of mince-based products - Exemplify the practical aspects of packaging and presenting mince-based products
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Mincing machines, Cutting Boards, Knives, Mixers, Blenders / Food processors, Weighing scales, Texture enhancers, Forming Equipment, Vacuum Tumblers/ Marination Equipment, Packaging Machinery, Quality Control Instruments, Chilling / Freezing Equipment, Safety Gear, Cleaning tools, Temperature Monitoring Devices, etc.	

Module 13: Conduct processing of extruded products
Mapped to FIC/N4008, v1.0

Terminal Outcomes:

- Discuss the processing of extruded products
- Demonstrate ways to prepare extruded products

Duration: *30:00*	Duration: *60:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Define extrusion process principles and their applications - Detail selection parameters (quality, texture and composition) for selecting raw material (suitable seafood) - Specify the significance of maintaining hygiene and food safety during extrusion - Detail the fundamentals of the extrusion process, including heating, cooking, and shaping - Illustrate the importance of balancing ingredients for texture, flavor, and nutritional content to formulate extruded product recipes - State the importance and impact of controlling temperature and pressure during extrusion - Explain the extruder settings for specific outcomes - List the techniques for controlling the texture and shape of extruded products - State the parameters for assessing the quality of extruded products - Explain the design and role of extrusion dies - State considerations for die design in shaping the final product - Discuss the importance of the cooling and drying process after extrusion	- Demonstrate how to operate different types of extruders by showing control interfaces - Walk through the formulation of extruded product recipes - Simulate exercises to understand the impact of temperature and pressure on product outcomes - Exhibit ways to set up and operation of extrusion dies by adjusting die settings for different product shapes - Show how to achieve specific textures during extrusion process - Demonstrate the quality checks for extruded products - Exemplify cleaning and maintenance of extrusion equipment
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Extruders, Extrusion dies, Temperature and pressure control systems, Ingredient mixers, Cooling conveyors, Cutting and shaping equipment, Quality control instruments, Cleaning tools and brushes, Maintenance equipment, Product Packaging machinery, etc.	

Module 14: Conduct processing of pickled products
Mapped to FIC/N4009, v1.0

Terminal Outcomes:

- Discuss the processing of pickled products
- Demonstrate ways to prepare pickled products

Duration: *30:00*	Duration: *60:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Define types of pickling methods and their applications - Detail selection parameters (quality, freshness) for selecting raw material (suitable seafood) - Specify the significance of maintaining hygiene and food safety during pickling process - Detail the various pickling ingredients, such as vinegar, salt, and spices - Define the formulation of pickling solutions for different products - State the fundamentals of the pickling process, including brining, marination, and fermentation - Details the role of pickling in preserving and flavoring - Discuss the importance of balancing acidity, sweetness, and spiciness in pickled products - Explain parameters for assessing the quality of pickled products - Detail the methods of packaging pickled products for preservation - Discuss the storage conditions to maintain product quality	- Demonstrate how to brine and marinate seafood products - Exemplify the formulation of pickling recipes by experimenting with combinations of ingredients for different pickled products - Simulate exercises to understand the pickling process - Walk through how to identify and resolve quality issues - Demonstrate the packaging of pickled products to ensure proper sealing and labelling - Illustrate techniques for extending shelf life through preservation - Exemplify cleaning and maintenance of pickling equipment
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Brining Tanks or container, mixing vessels, Thermometers, pH meters, Cutting boards, Knives, Packaging materials, Funnels, Lids and caps, Labeling equipment, Cleaning brushes and tools, Storage containers, Refrigeration or storage units, Quality control instruments, etc.	

Module 15: Conduct processing of Battered and Breaded or coated products
Mapped to FIC/N4010, v1.0

Terminal Outcomes:

- Discuss the processing of battered and breaded or coated products
- Demonstrate ways to prepare battered and breaded or coated products

Duration: *30:00*	Duration: *60:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Define types of batters and breading in seafood processing - Explain the principles of battering and breading in seafood processing - Detail selection parameters (quality, texture) for selecting raw material (suitable seafood) - Specify the significance of maintaining hygiene and food safety during battering and breading process - Detail the various batter and breading ingredients - Define the formulation of batter and breading recipes for different products - State the fundamentals of the battering and breading process, including adhesion and crispiness - Details the role of batter and breading in enhancing product appeal - State the different types of battering and breading equipment and control parameters - List the significance of controlling oil temperature during frying and its effect on quality of product - Define the parameters for assessing the quality of battered and breaded products	- Demonstrate the importance of coating thickness and uniformity - Exemplify formulation of batter and breading recipes - Demonstrate equipment settings for specific product outcomes - Simulate exercises to understand the frying process and troubleshooting scenarios - Walk through how to identify and resolve quality issues - Demonstrate the packaging of battered and breaded products to ensure proper sealing and labelling
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Battering machines, Breading machines, Coating drums, Conveyors, Frying equipment, Oil temperature control equipment, Weighing scales, Mixing vessels, Thermometers, Packaging equipment, Cleaning brushes and tools, Storage container, Cutting boards, Knives, Quality control instruments, etc.	

Module 16: Conduct processing of Intermediate moisture products (IMP)
Mapped to FIC/N4011, v1.0

Terminal Outcomes:

- Discuss the processing of intermediate moisture products
- Demonstrate ways to prepare intermediate moisture products

Duration: *30:00*	Duration: *60:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Define IMP and its characteristics along with the applications of IMP - Explain the principles of battering and breading in seafood processing - Detail selection parameters (quality, moisture) for selecting raw material (suitable seafood) - Specify the significance of maintaining hygiene and food safety during the processing of intermediate moisture products - Detail the various ingredients and share the understanding of the role of sweeteners, humectants, and preservatives - Define the processing methods for IMP - State dehydration and moisture control techniques - Define the parameters for assessing the quality of IMP by monitoring moisture levels, texture and appearance - State the methods of packaging IMP for preservation	- Demonstrate the formulation of IMP by experimenting with different ingredient combinations - Exemplify processing of IMP with the application of dehydration and moisture control methods - Demonstrate ways to check quality for IMP and how to resolve issues - Demonstrate the packaging of IMP to ensure proper sealing, labelling, and packaging integrity - Walk through on techniques for maintaining product quality during storage

Classroom Aids:
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook
Tools, Equipment and Other Requirements
Dehydrators, mixing vessels, Conveyors, Packaging equipment, Weighing scales, Thermometers, Humidity control equipment, Cutting boards, Knives, Storage containers, Cleaning brushes and tools, Sealing machines, Labeling equipment, Ingredient dispensers, Quality control instruments, etc.

Annexure

Trainer Requirements

Trainer Prerequisites					
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	*Specialization*	*Years*	*Specialization*	
B.Sc or graduate/B.Tech/BE	Food technology or food engineering or Fisheries	3	Food processing	1	Food processing	
M.Sc/M.Tech/ME	Food technology or food engineering or Fisheries	2	Food processing	1	Food processing	
Diploma /certificate course	(Food Technology / Food Engineering /packaging/Home science, or allied sector	4	Food processing	1	Food processing	

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Fish and Sea Food Processing Technician – Value added products" mapped to QP: "FIC/Q4003, v1.0". Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: "Trainer" (VET & SKILLS), mapped to the Qualification Pack: "MEP/Q2601", V.2. Minimum accepted SCORE IS 80 % as per SSC guidelines.

Assessor Requirements

Assessor Prerequisites					
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	*Specialization*	*Years*	*Specialization*	
M.Sc/M.Tech/ME	Food technology or food engineering or Fisheries	2	Food processing	1	Food processing	
B.Sc or graduate/B.Tech /BE	Food technology/ Home Science or Fisheries	3	Food processing	2	Food processing	
Diploma	Hotel management/ Food Science/ Home Science	4	Food processing	2	Food processing	

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Fish and Sea Food Processing Technician – Value added products" mapped to QP: "FIC/ Q4003, v1.0". Minimum accepted score is 80%.	Recommended that the Assessor is certified for the Job Role: "Assessor" (VET & SKILLS), mapped to the Qualification Pack: "MEP/Q2701", V-2. The minimum accepted SCORE IS 80 % as per SSC guidelines.

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