

Curriculum
For
Certificate in Seafood Processing

Code:VA01S001

(6 Months Duration Course)

(2013)



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INTRODUCTION

Name of course Sea Food Processing

Introduction

In the world of Pakistan's Sea Food Processing Plants, there is a dire need to pay attention to ensure correct hygienic handling of fresh & processed fishery products. For seafood companies to be profitable and to survive in the global market, they constantly need to improve processing, fully utilize the available resources and come up with new products. Being a country with a vast coastline of about 1050 km, fishing and allied industries play an important role in providing employment to a vast majority of the population, as well as sustaining the economy with the foreign exchange earned from the export of various fisheries products. This course is aimed at introducing the basic skill & knowledge of sea food processing industry and to produce skilled and semi skilled workers for seafood processing industry. This course will also help to improve the fishing industry, which directly or indirectly helps to improve the standard of living of fisher folk and also generate employment/self-employment opportunities.

OVERALL OBJECTIVE OF COURSE

The overall aim of this course is to provide semi-skilled & skilled workers of Seafood processing industry. This program is designed to achieve following objectives for the training of the skilled:

1. To make aware the worker about various categorisation of sea food processed in Pakistan.
2. Develop the understanding of seafood process technologies and handling procedures.
3. To aware the worker about quality and safety requirements of processed seafood.
4. To provide knowledge of packaging procedures for sea food and their by-products.
5. To develop awareness of the storage and transport techniques.

COMPETENCIES GAINED AFTER COMPLETION OF COURSE

After completion of this course skilful workers can be produced for seafood processing plant and the trainee will be able:

- To understand the status of Pakistani seafood/fisheries and export.
- To identify the maritime states, fishing zones, major seafood/fishing harbours and ports of Pakistan.
- To understand various fishing methods briefly.
- To understand the commercially important fishery resources of Pakistan.
- To develop the skills to familiarise different varieties of fishes, crustaceans and molluscs.
- To understand the post mortem changes taking place in the fish muscle.
- To develop the skill to differentiate fresh and spoiled fish.
- To understand the methods to prevent fishery product spoilage.
- To understand the hygienic handling of fish and shrimp on board fishing vessel and on shore.
- To develop the skill for fish handling.
- To develop the steps in the preparation of fish for processing.
- To understand the principle of chilling.
- To understand the different methods of icing.

- To develop the skill for icing the fish.
- To identify different types of ice.
- To develop skill for chlorinating water.
- To understand the significance of quality of ice and water to be used in fish processing.
- To understand the need for chlorination of water in fish processing.
- To understand the use of chilled water for fish storage.
- To familiarise the different equipments in fish processing industry.
- To understand the concept of freezing as a preservative method.
- To develop a skill to differentiate freezing and chilling.
- To develop a skill to differentiate slow freezing and quick freezing.
- To understand the terms related to freezing.
- To understand the factors affecting freezing rate.
- To understand different freezing methods.
- To understand different product styles of cephalopods and fishes.
- To apply the acquired skills in new situations.
- To familiarise with different steps in freezing.
- To familiarise with common types of freezers.
- To develop skills in preparing different product styles of prawns.
- To understand the functions of a cold storage
- To understand different types of cold storage
- To understand the chilled storage and frozen storage
- To understand fish transportation.
- To understand the changes in fish muscle during freezing and in the cold storage.
- To understand the significance of factory hygiene and sanitation in seafood industry.
- To develop skills to maintain personal hygiene and sanitation.
- To understand the concept of packing and its importance
- To familiarise with different types of packaging materials.
- To develop skills for identifying and applying different types of packing materials.

JOB OPPORTUNITIES AVAILABLE IMMEDIATELY AND IN THE FUTURE

The candidate will have the ability to apply different places of seafood processing industry or can be self employed

CURRICULUM SALIENT POINTS

Entry Level	primary/middle
Duration of Course	06 months
Total training hours	800
	34 hours (per week)
	6 days (week)
	6 hours a day (except Friday 4 hours)

Training Methodology

Practical 80 %

Theory 20 %

Medium of Instruction

Urdu

Min Qualification of Trainer

Industrial experience of five years (minimum) Or

Certificate course in respective field with two years of Field experience

OVERVIEW ABOUT THE PROGRAM–SEAFOOD PROCESSING

Module Title and Aim	Learning Units	Theory1 Days/hours	Workplace2 Days/hours	Timeframe of modules
<p>Module 1: Receiving of Sea Food Items</p> <p>To provide the basic information about receiving of raw material either from industry or supplier and to perform basic quality checks.</p>	<p>LU-1: Commercially important seafood resources of Pakistan and identification of different varieties of Raw Materials (fishes, crustaceans and mollusks) for the seafood industry</p> <p>LU-2 Quality check for raw material.</p> <p>LU-3: Grading of raw material</p> <p>LU-4: Weighing raw materials</p> <p>LU-5: Maintaining inventory.</p> <p>LU-6: Coordinate work site activities</p>	30 hrs	90 hrs	
<p>Module 2:Cleaning of Aquatic Products</p> <p>This Module of competency involves removing scales, gills and guts from fish and then rinsing away all loose debris to produce clean fish according to productivity requirement.</p>	<p>LU-1: Workplace and tool cleaning before scaling/gutting/peeling</p> <p>LU-2: Hygienic Fish Handling</p> <p>LU-3: Perform scaling /gutting/peeling</p> <p>LU-4 Washing and chilling of raw materials.</p> <p>LU-5: Awareness of freezing process</p> <p>LU-6: Disposal of waste material</p>	25 hrs	120 hrs	Complete Module-1 first
<p>Module 3:Handling and Packing Seafood Products</p> <p>This Module of competency involves handling, grading, packing and Labeling of seafood according to productivity requirement</p>	<p>LU-1: Size grading of cleaned product.</p> <p>LU-2: Perform handling and packing of products.</p> <p>LU-3 Perform labeling of finished products or in process labeling.</p>	25 hrs	90 hrs	Complete Module-2 first
<p>Module 4: Processed seafood quality and safety</p> <p>This Module covers the skills and knowledge required to maintain seafood Quality, safety and hygiene practices</p>	<p>LU-1. Safety of seafood products</p> <p>LU-2. Assuring Quality standard</p> <p>LU-3 Follow workplace procedures</p> <p>LU-4 Follow First Aid procedures</p>	30 hrs	120 hrs	Independent
<p>Module 5: Communicating with Workplace</p> <p>This module develops the competency to properly communicate with the Managers/supervisors, operators, and senior/junior officials of other departments</p>	<p>LU-1 Communicate with Senior/Junior</p> <p>LU-2 Communicate with Peers</p> <p>LU-3 Communicate with manager</p> <p>LU-4 Communicate with transportation supervisor</p> <p>LU-5 Communicate with suppliers</p> <p>LU-6 Report on workplace performance</p>	25 hrs	80 hrs	Independent
<p>Module-6: Process Technologies</p> <p>This Module covers awareness of seafood processing modern technology and adding value to</p>	<p>LU-1 Modern techniques used in processing plant</p> <p>LU-2 Awareness about CCP</p> <p>LU-3 Modern Monitoring techniques</p> <p>LU-4. Seafood processing plants with new technologies.</p>	25 hrs	60 hrs	Complete Module-5 first

seafood products	LU-5. Regulatory requirements LU-6. Value Added Products			
Module- 7: Seafood Storage And Transport This Module involves preparing, storage, packing and dispatching processed seafood products for live transport to facilities beyond the fishing vessel and fish retail markets.	LU-1 Working with Temperature Controlled Stock LU-2 Receive and store stock LU-3 Recording data LU-5 Operate vessel deck machinery and lifting appliance LU-6 Loading Container through Conveyer Belt/Forklift. LU-7 Maintaining Shipment Record	10 hrs	70 hrs	Complete Module-6 first
Total		170	630	

SEAFOOD PROCESSING CURRICULUM CONTENTS

Module 1: Receiving of Sea Food Items

Objective of the Module: To give the basic information about Pakistan seafood industry and the system to receive seafood.

Duration: 30 hours Theory 90 hours Practical

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1 Commercially important seafood resources of Pakistan and identification of different varieties of Raw Materials (fishes, crustaceans and molluscs) for the seafood industry	To give basic introduction of seafood processing technology	<ul style="list-style-type: none"> To understand the concept of freezing as a preservative method. To develop a skill to differentiate freezing and chilling. To understand the status of Pakistani seafood/fisheries and export. To identify the maritime states, fishing zones, major seafood/fishing harbours and ports of Pakistan. To understand various fishing methods briefly. To understand the commercially important fishery resources of Pakistan. To develop the skills to familiarise different varieties of fishes, crustaceans and molluscs 	TH: 5hrs PR:15hrs	Multimedia, OHP, marker and white board	Class/ Workplace
LU-2 Quality check for raw material.	Enable the candidate to check quality of raw material.	<ul style="list-style-type: none"> To develop the skills to check the freshness of raw material through <i>Organoleptic</i> test 	TH: 5hrs PR:15hrs		Class/ Workplace

LU-3 Grading of raw material	Able to Grading Incoming Raw material	<ul style="list-style-type: none"> To develop the skills to grade of raw shrimps by different sizes by the purchaser requirement. To develop the skills of preparing check list. 	TH: 5hrs PR:15hrs		Class/ Workplace
LU-4 Weighing raw materials	Able to Operate weighing equipments and preparing data	<p>Knowledge of</p> <ul style="list-style-type: none"> -Operating weighing equipments - data preparation of different lots of weighing 	TH: 5hrs PR:15hrs		Class/ Workplace
LU-5 Maintaining inventory	Able to Weight incoming material and keep records in stock register	<p>Knowledge of</p> <ul style="list-style-type: none"> -maintaining stock register 	TH: 5hrs PR:15hrs		Workplace
LU-6 Coordinate work site activities	Able to explain the works of working tools or , technical knowledge and skills to check and isolate routine and non-routine equipment faults used in production and report on the status of equipments	<p>Knowledge of</p> <ul style="list-style-type: none"> - function of working tools or , technical knowledge and skills. 	TH: 5hrs PR:15hrs		Workplace

Module 2:**Cleaning Aquatic Items.**

Objective of the Module: The main objective of this module is to train the workers for the skills of removing scales, gills and guts from fish and then rinsing away all loose debris to produce clean fish according to productivity requirement.

Duration: 25hours Theory 120 hours Practical

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1 Workplace and tool cleaning and awareness of personal hygiene	Able to maintain clean and hygienic environment for the preparatory work practices related to scaling/gutting/washing.	<ul style="list-style-type: none"> Understand the details about factory hygiene and sanitation. Understand the significance of cleaning, sanitizing and sharpening the tools used in seafood industry. Personal hygiene and sanitation develop skills to maintain. Hygienic handling of seafood on board and on shore Apply the acquired knowledge in new situations 	TH: 4hours PR:20hours	Apron Caps gloves	Field visit and Class discussion
LU-2 Hygienic Fish Handling	To familiarise students with hygienic seafood handling practices observed during the pre-processing and processing of Aquatic products.	<ul style="list-style-type: none"> Understand the hygienic handling of fish and prawn onboard and on shore Develop skills for fish handling Understand the steps in the preparation of fish for processing Understand need for chlorination of water in seafood processing 	TH: 4hours PR:20hours		Class/ Workplace

<p>LU-3 Perform scaling /gutting/peeling</p>	<p>Able to pre process the seafood species for final processing.</p>	<ul style="list-style-type: none"> • Understanding the steps in the preparation of fish for processing • Develop skills for holding the fish and working with knife from the tail to the head. • Develop skills for scaling fish and removing skin. • Develop skills for slicing the fish at various lengths and pull the guts from it. • Develop skills for removing gills and fins. • Develop skills for peeling prawns • Develop skills for tearing off the head/tail, and pulling the legs and shell from the prawn 	<p>TH: 4hours PR:20hours</p>	<p>A variety of trays, stainless steel trays and deep-sided trays, a cutting board, fish scissors and a filleting knife.</p>	<p>Workplace</p>
<p>LU-4 Washing and chilling/icing of raw materials</p>	<p>To familiarize students with the manufacturing process of ice and washing and chilling of seafood before and after processing</p>	<ul style="list-style-type: none"> • Cleaning thoroughly with cold water before and after performing scaling /gutting/peeling. • Understanding the principles of chilling seafood. • Understanding the process of ice manufacture. • Identifying different types of ice (Block ice and Flake ice), and developing skills for icing (Bulking, Shelving, Boxing) • Understand different methods of icing. • Understand the significance of quality of ice and chilled water. 	<p>TH: 4hours PR:20hours</p>	<p>Cutting board, fish scissors and a filleting knife.</p>	<p>Workplace</p>

<p>LU-5 Awareness of freezing process</p>	<p>To familiarize students with freezing processes and their importance</p>	<ul style="list-style-type: none"> • To understand the concept of freezing as a preservative method. • To develop a skill to differentiate freezing and chilling. • To enable to analysis of a frozen product (Formation of large or small ice crystals). • To provide knowledge of evaluating the frozen product quality, duration and temperature of freezing. • Understand different freezing methods employed in seafood processing and their importance. 	<p>TH: 5hours PR:20hours</p>		
<p>LU-6 Disposal of waste material</p>	<p>Able to identify methods of waste management (solid or liquid waste produced) and there treatments.</p>	<p>Knowledge of handling</p> <ul style="list-style-type: none"> • Solid wastes: include skin, viscera, fish heads and carcasses (fish bones) • Liquid wastes: include blood water and brine from drained storage tanks, and water discharges from washing and cleaning. 	<p>TH: 4hours PR:20hours</p>	<p>digesting tanks, scrap boxes</p>	<p>Workplace</p>

Module 3: Handling And Packing Seafood Products.

Objective of the Module: This module is designed to develop competency involving handling, grading, packing and storage of fish according to productivity requirement.

Duration: 25 hours Theory 90 hours Practical

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1 Size grading of cleaned product	To enable candidate apply best weighing scale/equipment and size grading techniques for the related seafood products	<ul style="list-style-type: none"> Develop skills in preparing different product style (i.e. Whole, HL, PD, PUD, CPD, Block, IQF products etc.) Develop skills for grading seafood based on different size and weight requirements. Use the measuring/weighting the product. Setting up procedure of collaborated weighting equipment 	TH: 10hours PR:30hours	Duster, Safety shoes, Name Tag, Food Thermometer, Writing Material, Beard Net, Hand Gloves	Lab
LU-2 Perform handling and packing of products	To enable candidate to handle seafood hygienically while maintaining safe environment and pack seafood products through different methods	<ul style="list-style-type: none"> To develop understanding of safe and hygienic handling of raw materials/product. To make aware different material handling equipments used in sea food processing industry. To enable the person to use various materials handling equipments. To familiarise with different types of packaging materials. To understand recent trends in packaging. Understand the concept of packing and its importance. To know the 	TH: 10hours PR:30hours	Writing Material, Beard Net, Hand Gloves	Work Place

		<p>importance of thickness and thermal conductivity of packaging materials.</p> <ul style="list-style-type: none"> • To know different types of packaging materials used for packing seafood products. • Develop skills of using different seafood packaging for different products/species. • Make aware of modern trends in packaging. 			
<p>LU-3 Perform labeling of finished products or in process labeling.</p>	<p>Able to apply and know the importance of labeling in seafood processing.</p>	<ul style="list-style-type: none"> • To familiarize with importance of labeling techniques. • Importance and understanding of QC labeling • Importance and understanding of barcode labeling. • Importance and understanding of RFID labeling 	<p>TH: 5hours PR:30hours</p>		<p>Work Place</p>

Module 4: Processed Seafood Quality and Safety.

Objective of the Module: This Module covers the skills and knowledge required to maintain personal hygiene and conduct, food handling, housekeeping and waste disposal related to work tasks and responsibilities where work involves operation of production and/or packaging equipment and processes.

Duration: 30 hours Theory 120 hours Practical

Module 5: Communicating With Workplace.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1. Safety of seafood products	Able to explain Seafood Product safety and apply quality principles and system requirements	Knowledge of -safety procedures. -System requirements -monitoring safety hazards	TH: 7hours PR:30hours	Cleanliness Material used For cleaning. Sanitizer, detergents	Class/ Workplace
LU-2. Assuring Quality standard	Understand the Quality standards Able to Analyze the challenges of quality and safety,	Knowledge of - key challenges -quality standards	TH: 8hours PR:30hours	Writing material, manuals	Class/ Workplace
LU-3 Follow workplace procedures	Able to apply simple workplace procedures Understand basic quality assurance practices.	knowledge of - basic quality assurance practices related to monitoring quality where work involves routine manual processes and/or operation of simple automated equipment	TH: 7hours PR:30hours	Writing material, manuals	Workplace
LU-4 Follow First Aid procedures	Able to apply simple First Aid procedures Understand basic safety practices	Knowledge of; First Aid practices Ability to, Apply first Aid procedures Clean and monitor the First Aid tools	TH: 8hours PR:30hours	First Aid kit, Cleaning material , sanitizers	Workplace

Objective of the Module: This Module covers Communicating effectively in the workplace through quality systems and procedures.

Duration: 25 hours Theory 80 hours Practical

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1 Communicate with senior / junior	Understand the communication skill and communicate with senior / junior	<p>Knowledge of:</p> <ul style="list-style-type: none"> - Verbal and written communication, and channel of communication <p>Ability to:</p> <ol style="list-style-type: none"> 1. Communicate verbally according to the status of senior / junior, select the suitable channel and communicate in writing. 	TH: 4hours PR:12hours	Related books, White Board, Papers	Class/ Workplace
LU-2 Communicate with Peers	Understand the communication skill and communicate with senior / junior	<p>Knowledge of:</p> <ul style="list-style-type: none"> - Verbal and written communication, and channel of communication <p>Ability to:</p> <ol style="list-style-type: none"> 1. Communicate with different level of personnel 	TH: 4hours PR:14hours	Writing materials,	Class/ workplace
Lu-3 Communicate with manager	<p>Understand the importance of Communication</p> <p>be able to apply correct Communication procedures</p>	<p>Knowledge of</p> <ul style="list-style-type: none"> -Manager's requirement -communication medium -correct measures <p>Ability to</p> <p>Apply communication procedures</p>	TH: 4hours PR:14hours	Writing materials,	Class/ workplace
LU-4 Communicate with transportation supervisor	<p>Understand the importance of Communication</p> <p>be able to apply correct Communication procedures</p>	<p>Knowledge of</p> <ul style="list-style-type: none"> -Transportation requirement -communication medium -correct measures <p>Ability to</p> <p>Apply communication procedures</p>	TH: 4hours PR:12hours	Writing materials, software	Class/ Workplace

<p>LU-5 Communicate with suppliers</p>	<p>Understand the importance of Communication</p> <p>be able to apply correct Communication procedures</p>	<p>Knowledge of</p> <ul style="list-style-type: none"> -Supplier's requirement -communication medium -correct measures <p>Ability to Apply communication procedures</p>	<p>TH: 4hours PR:13hours</p>	<p>Writing materials, software</p>	<p>Class/ Workplace</p>
<p>LU-6 Report on workplace performance</p>	<p>Understand the importance of Reporting performance</p> <p>be able to apply correct Reporting procedures</p>	<p>Knowledge of</p> <ul style="list-style-type: none"> -Reporting procedures -communication medium -correct measures 	<p>TH: 5hours PR:15hours</p>	<p>Writing materials, Record keeping log book</p>	<p>Class/ Workplace</p>

Module 6: Process Technologies.

Objective of the Module: This Module covers awareness seafood processing modern technology and adding value to seafood products.

Duration: 25 hours Theory 60 hours Practical

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1 Modern techniques used in processing plant	Able to Analyze the modern techniques used in seafood processing plant Understand the importance of modern techniques.	Knowledge of - productivity and competitiveness of seafood processing -modern techniques Processing and packaging technology in Supply chain management systems	TH: 4hours PR:10hours	Software, writing material	Class/ Workplace
LU-2 Awareness about CCP	Understand Just in time Procedures Be able to develop the knowledge and skills needed to work in a CCP Environment	Knowledge of; Importance of CCP Environment Ability to; Maintain CCP environment in processing plant conveniently	TH: 4hours PR:10hours		Class/ Workplace
LU-3 Modern Monitoring techniques	Able to monitor the operation of equipment used in a production process. Enhance quality, shelf life and traceability through the application of smart packaging and labeling technologies	Knowledge of - Importance of monitoring process. Ability to apply monitoring process on product with smart packaging and labeling like RFID Tags	TH: 4hrs PR:10hrs	Writing material RFID chip sample	Class/ Workplace
LU-4: Seafood processing plants with new technologies	Able to apply the operation of improved production efficiencies with the introduction of the latest technology, processes for quality and safety	Knowledge of -Importance of Processing technique Slowing down or preventing growth of microorganisms through freezing.	TH: 5hrs PR:10hrs		Class/ Workplace
LU-5. Regulatory requirements	Able to understand and apply approved SOPs	Knowledge of approved SOPs.	TH: 4hrs PR:10hrs	Regulatory Manual	Class/ Workplace

LU-6. Value Added Products	Able to understand Value Addition techniques and apply SOPs of value addition	To identify the different- Value-added products	TH: 4hours PR:10hours	Writing materials	Class/ Workplace
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Module 7:**Seafood Transport and Storage.**

Objective of the Module:

This Module involves preparing, packing and dispatching processed seafood products for live transport to facilities beyond the fishing vessel, aquaculture, and fish retail markets.

Duration:

10 hours Theory

70 hours Practical

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU-1 Working with Temperature Controlled Stock	Understand the temperature Controls Able to check the temperature in cold chain	Knowledge of -temperature control -monitoring of stock's temperature Ability to Follow the procedure of temperature control in cold chain.	TH: 2hours PR:12hours	Writing material, Operating manual	Workplace
LU-2 Receive and store stock	Understand to receive and store stock Able to analyze appropriate storing system	Ability to check and take delivery of stock, other than food product, and to appropriately store, rotate and maintain the quality of stock items	TH: 2hours PR:12hours	Writing material, Operating manual	Workplace
LU-3 Recording Data	Understand the importance of recording data Able to fill data sheet.	Knowledge of -recording data on time -filling of data sheet Ability to Record data in Performa	TH: 1hours PR:12hours	Writing material, Operating manual	Workplace
LU-4 Operate vessel deck machinery and lifting appliance	Understand the operating basic deck machinery and lifting appliances aboard an aquaculture or fishing vessel, including loading and discharging goods, rope work, assisting in mooring operations, and operating cranes etc	Ability to -operate vessel deck machinery Lifting appliance	TH: 1hours PR:11hours	Writing material, Operating manual	Workplace

LU-5 Loading Container through Conveyer Belt/Forklift	Able to operate a loading crane to shift loads, including positioning and stabilizing the crane, operating the Conveyer Belt, monitoring lift conditions, packing up the crane after operations.	Knowledge of -Loading and unloading from container -operating crane -operating Forklift Ability to Complete all Loading process	TH: 2hours PR:12hours	Writing material, Operating manual	Workplace
LU-6 Maintaining Shipment Record	Understand the importance of maintain the shipment record. Able to record shipment	Knowledge of -Recording methods -maintaining shipment data.	TH: 2hours PR:11hours	Writing material, Operating manual	Workplace/ Class

ASSESSMENT

Module 1 (Received Of Seafood Items)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
LU-1 Commercially important seafood resources of Pakistan and identification of different varieties of Raw Materials (fishes, crustaceans and mollusks) for the seafood industry			Explain the basic information about the seafood varieties.	Multiple Choice Questions Short Answer-Question test.	
LU-2 Quality check for raw material.			Explain process of quality checks of raw material Describe Quality controls	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-3 Grading of raw material			Explain the importance of grading. Demonstrate grading of raw material	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-4 Weighing raw materials			Explain the weighing methods Demonstrate the weighing methods on different machineries	Multiple Choice Questions Short Answer-Question test.	
LU-5 Maintaining inventory			Explain the importance of maintaining inventory Describe inventory procedures.	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-6 Coordinate work site activities			Explain the coordination of workplace activities Describe Coordination process	Multiple Choice Questions Demonstration Short Answer-Question test.	

Module 2 (Cleaning Of Aquatic Products)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
LU-1 Workplace and tool cleaning before scaling/gutting/peeling			Describe preparation method Illustrate scaling/gutting/washing	Multiple Choice Questions Short Answer-Question test.	
LU-2 Hygienic Fish Handling			Describe the selection and use of the safety procedures in fish handling Explain the importance of hygienic fish handling Wear work clothes	Multiple Choice Questions Short Answer-Question test	
LU-2 Perform scaling, gutting/peeling			Practice scaling/gutting and peeling	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-4 washing and chilling of raw materials			Demonstrate Washing and Chilling process	Multiple Choice Questions Short Answer-Question test.	
LU-5 Awareness of freezing process			Explain the importance of freezing process Describe freezing methods		
LU-6 Dispose waste material			Describe the Disposal techniques	Multiple Choice Questions Demonstration Short Answer-Question test.	

Module 3 (Handling and Packing Seafood Products)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
LU-1 Size grading of cleaned product			Explain the size grading methods Describe Grading method	Multiple Choice Questions Short Answer-Question test.	
LU-2 Perform handling and packing of products			Describe handling process and packing methods List packaging material	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-3 Perform labeling of finished products or in process labeling.			Explain importance of labeling methods Describe Procedure of labeling	Multiple Choice Questions Demonstration Short Answer-Question test.	

Module 4 (Processed Seafood Quality and Safety)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
LU-1. Safety of seafood products			Explain the importance of seafood safety Demonstrate different safety method	Multiple Choice Questions Short Answer-Question test.	
LU-2. Assuring Quality standard			Explain the measuring of quality standards Describe managing quality standards	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-3 Follow workplace procedures			Explain workplace routine procedures	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-4 Follow First Aid procedures			Explain first Aid procedures Know work hazards, injuries & required first aid	Multiple Choice Questions Demonstration Short Answer-Question test.	

Module 5 (Communication at Workplace)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
LU-1 Communicate with Senior/Junior			Explain communication technique and communication skills with senior/junior. Demonstrate to perform the communication with the related person	Multiple Choice Questions Short Answer-Question test.	
LU-2 Communicate with Peers			Explain communication technique and communication skills with peers Demonstrate to perform the communication with the related person	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-3 Communicate with manager			Explain communication technique and communication skills with Manager. Demonstrate to perform the communication with the related person	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-4 Communicate with transportation supervisor	2hours	10hours	Explain communication technique and communication skills with Transportation Supervisor. Demonstrate to perform the communication with the related person	Multiple Choice Questions Short Answer-Question test.	
LU-5 Communicate with suppliers			Explain communication technique and communication skills with Suppliers. Demonstrate to perform the communication with the related person	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-6 Report on workplace performance			Explain the performance of workplace.	Multiple Choice Questions Demonstration Short Answer-Question test.	

Module 6 (Process Technologies)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
LU-1 Modern techniques used in processing plant procedures			Demonstrate different modern techniques Explain the packaging technology	Multiple Choice Questions Short Answer-Question test.	
LU-2 Awareness about CCP			Explain importance of CCP environment. Describe the CCP checks.	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-3 Modern Monitoring techniques			Explain monitoring procedure. Explain shelf life and traceability through the application of smart packaging	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-4- Seafood processing plants with new technologies			Explain the importance of new technologies in quality and safety Demonstrate process improvement methods	Multiple Choice Questions Short Answer-Question test.	
LU-5. Regulatory requirements			Explain the regulatory standards/ approved SOPs.	Multiple Choice Questions Short Answer-Question test.	
LU-6. Value Added Products			Describe SOPs of value addition.	Multiple Choice Questions Short Answer-Question test.	

Module 7 (Seafood Transport and Storage)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
LU-1 Working with Temperature Controlled Stock			Explain the monitoring of temperature controls. Demonstrate the procedure of temperature control	Multiple Choice Questions Short Answer-Question test.	
LU-2 Receive and store stock			Illustrate receiving and storing stock process	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-3 Recording Data			Demonstrate the Performa filling	Multiple Choice Questions Short Answer-Question test.	
LU-4 Operate vessel deck machinery and lifting appliance			Explain the working of vessel deck machinery and lifting appliance Demonstrate operation of vessel deck machinery	Multiple Choice Questions Short Answer-Question test.	
LU-5 Loading Container through Conveyer Belt/Forklift.			Explain working of Conveyer belt/fork lift. Describe loading and unloading process.	Multiple Choice Questions Demonstration Short Answer-Question test.	
LU-6 Maintaining Shipment Record			Explain the recording on shipment sheet	Multiple Choice Questions Demonstration Short Answer-Question test.	

SUPPORTIVE NOTES

Assessment context

This module has to be assessed in the class as well as on workplace

Critical aspects

- Able to identify the different raw materials
- Ability to perform Cleaning of raw materials
- Ability to ensure processing techniques
- Ability to operate the machine/equipment for grinding
- Ability to apply seafood processing safety and quality hazards
- Ability to follow safety rules
- Ability to use all equipments, tools, appropriate machinery utensils.

Assessment condition

- Each unit should be assessed separately.
- The candidate will have access to all the related tools, Kits and material.
- The candidate will be required verbally or by other methods of communication to answer questions asked by the assessor.
- Present evidence related to the skills.
- Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by criteria and that he possesses the required knowledge and skill

RESOURCES REQUIRED FOR ASSESSMENT

All forms and report material

LIST OF TOOLS, MACHINERY & EQUIPMENT

Name of Trade	Sea Food Processing
Duration	6 months

Sr. No.	Name of Item/ Equipment / Tools
1.	<p><u>LABOUR KIT</u></p> <p>Gloves Gum Boots Mask Cap Apron</p>
2.	<p><u>WORKING TOOLS</u></p> <p>Knifes Fiber Shovel Insulated Plastic Box Steel Working Tables Steel Grading Boxes aluminum Pleats Freezing tray Scalar Weighing Equipments Plastic Pellets</p>
3.	<p><u>PACKING MATERIAL</u></p> <p>Master Cartoon Wax Cartoon Food Graded Polythen bag Packing Tap Packing Machine Plastic Ribbon Belling Hooks Steel Hooks</p>

LIST OF CONSUMABLE SUPPLIES

Not required as field visit will provide the basic understanding of processing and consumables.

CONTRIBUTIONS FOR DEVELOPMENT OF THIS CURRICULUM

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