

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

These are the list of specializations and their pre-requisites.

	Specialization	Number of Hours	Pre-requisite
1.	Animal Production (NC II)	480 hours	
2.	Aquaculture (NC II)	320 hours	
3.	Artificial Insemination (Ruminants) (NC II)	160 hours	Animal Production
4.	Artificial Insemination (Swine) (NC II)	160 hours	Animal Production
5.	Crop Production (NC I)	320 hours	
6.	Fish Nursery Operation (NC II)	160 hours	
7.	Fish or Shrimp Grow Out Operation (Non NC)	160 hours	Aquaculture
8.	Fish Wharf Operation (NC I)	160 hours	Fish or Shrimp Grow Out Operation
9.	Food (Fish) Processing (NC II)	640 hours	
10.	Horticulture (NC II)	640 hours	
11.	Landscape Installation and Maintenance (NC II)	320 hours	Crop Production
12.	Organic Agriculture (NC II)	320 hours	Crop Production
13.	Pest Management (NC II)	320 hours	Crop Production
14.	Rice Machinery Operation (NC II)	320 hours	Crop Production
15.	Slaughtering Operation (NC II)	160 hours	Animal Production
1.	Beauty/Nail Care (NC II)	160 hours	40 hours of the subject during exploratory Grade 7/8
2.	Attractions and Theme Parks (NC II)	160 hours	
3.	Bread and Pastry Production (NC II)	160 hours	
4.	Caregiving (NC II)	640 hours	40 hours of the subject during exploratory Grade 7/8
5.	Cookery (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
6.	Dressmaking (NC II)	320 hours	
7.	Food and Beverage Services (NC II)	160 hours	
8.	Front Office Services (NC II)	160 hours	40 hours of the subject during exploratory Grade 7/8
9.	Hairdressing (NC II)	320 hours	
10.	Handicraft (Basketry, Macrame) (Non-NC)	160 hours	
11.	Handicraft (Fashion Accessories, Paper Craft) (Non-NC)	160 hours	
12.	Handicraft (Needlecraft) (Non-NC)	160 hours	
13.	Handicraft (Woodcraft, Leathercraft) (Non-NC)	160 hours	
14.	Household Services (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
15.	Housekeeping (NC II)	160 hours	
16.	Tailoring (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
17.	Tour Guiding Services (NC II)	160 hours	
18.	Tourism Promotion Services (NC II)	160 hours	
19.	Travel Services (NC II)	160 hours	
20.	Wellness Massage (NC II)	160 hours	

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		Specialization	Number of Hours	Pre-requisite
1.	ICT	Computer Hardware Servicing (NC II)	320 hours	
2.		Animation (NC II)	320 hours	
3.		Computer Programming (NC IV)	320 hours	
4.		Contact Center Services (NC II)	320 hours	
5.		Illustration (NC II)	320 hours	
6.		Medical Transcription (NC II)	320 hours	
7.		Technical Drafting (NC II)	320 hours	
1.	INDUSTRIAL ARTS	Automotive Servicing (NC I)	640 hours	
2.		Carpentry (NC II)	640 hours	
3.		Consumer Electronics Servicing (NC II)	640 hours	
4.		Electrical Installation and Maintenance (NC II)	640 hours	
5.		Masonry (NC II)	320 hours	
6.		Plumbing (NC I)	320 hours	
7.		Plumbing (NC II)	320 hours	Plumbing (NC I)
8.		Refrigeration and Airconditioning Servicing (NC II)	640 hours	
9.		Shielded Metal Arc Welding (NC I)	320 hours	
10.		Shielded Metal Arc Welding (NC II)	320 hours	Shielded Metal Arc Welding (NC I)
11.		Tile Setting (NC II)	320 hours	

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING
Grade 7/8 (Exploratory)

Course Description:

This Module is an exploratory and introductory course which leads to **Food (Fish) Processing** National Certificate Level II (NC II). It covers **four** common competencies that a Grade 7/Grade 8 Technology and Livelihood Education (TLE) student ought to possess, namely: 1) using and maintaining tools, equipment and paraphernalia; 2) performing mensuration and calculation; 3) interpreting technical drawing and plans and; 4) applying food safety and sanitation.

The preliminaries of this exploratory course include the following: 1) discussion on the relevance of the course; 2) explanation of key concepts relative to the course and; 3) exploration on career opportunities.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODING
Introduction 1. Basic concepts in Food (Fish) Processing 2. Relevance of the course 3. Career opportunities	The learner demonstrates understanding of basic concepts, and underlying theories in Food (Fish) Processing.	The learner independently demonstrates common competencies in Food (Fish) Processing as prescribed in the TESDA Training Regulation.	1. Explain basic concepts in Food (Fish) Processing 2. Discuss the relevance of the course 3. Explore on opportunities for Food (Fish) Processing as a career	
Personal Entrepreneurial Competencies (PECS)				
1. Assessment of Personal Entrepreneurial Competencies and Skills (PECs) vis-à-vis a practicing entrepreneur/employee 1.1 Characteristics 1.2 Attributes 1.3 Lifestyle 1.4 Skills 1.5 Traits 2. Analysis of one's PECs	The learner demonstrates understanding of one's Personal Entrepreneurial Competencies and Skills (PECs).	The learner recognizes his/her Personal Entrepreneurial Competencies and Skills (PECs) and prepares a list of PECs of a practitioner/entrepreneur in Food Processing.	LO 1. Recognize Personal Entrepreneurial Competencies and Skills (PECs) needed in Food Processing 1.1. Assess one's PECs: characteristics, attributes, lifestyle, skills, traits 1.2. Assess practitioner's: characteristics, attributes, lifestyle, skills, traits 1.3. Compare one's PECs with that of a practitioner /entrepreneur	TLE_PECs7/8-00-1
Environment and Marketing (EM)				
1. Key concepts of Environment and Market 2. Products & services available in the market 3. Differentiation of products and services 4. Customers and their buying habits 5. Competition in the market 6. SWOT Analysis	The learner demonstrates understanding of environment and market that relates with a career choice in Food Processing.	The learner independently generates a business idea based on the analysis of environment and market in Food Processing.	LO 1. Generate a business idea that relates with a career choice in Food Processing 1.1. Conduct SWOT analysis 1.2. Identify the different products/services available in the market 1.3. Compare different products/services in computer hardware servicing business 1.4. Determine the profile potential	TLE_EM7/8E M-00-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODING
			customers 1.5. Determine the profile potential competitors 1.6. Generate potential business idea based on the SWOT analysis	
LESSON 1: USE AND MAINTAIN FOOD PROCESSING TOOLS, EQUIPMENT AND UTENSILS (UT)				
1. Food (fish) processing tools, equipment and instruments 2. Faults and defects of tools, equipment and instruments in food (fish) processing 3. Reporting defective tools, equipment and utensils	The learner demonstrates understanding of uses and maintenance of food (fish) processing tools, equipment, instruments and utensils in food (fish) processing.	The learner uses and maintain appropriate food (fish) processing tools, equipment, instruments and utensils and reports accordingly upon discovery of defect/s.	LO 1. Select tools, equipment, utensils and instruments 1.1. Select tools, equipment, utensils and instruments according to food (fish) processing method 1.2. Explain the defects in tools, equipment, utensils and instrument 1.3. Follow procedures in reporting defective tools, equipment, utensils and instruments	TLE_AFFP7/8 UT- 0a-1
4. Standard measuring devices and instruments 5. Sanitizing tools, equipment, instruments, and utensils 6. Calibration of measuring devices and instruments 7. Selection of food (fish) processing tools, equipment, instruments and utensils			LO 2. Use tools, equipment, instruments and utensils by following the standard procedures 2.1. Interpret a food processing procedure 2.2. Apply standard procedures in using tools, equipment, instruments, and utensils 2.3. Calibrate tools, equipment instruments and utensils 2.4. Follow procedures in sanitizing tools, equipment, instruments and utensils 2.5. Use tools, equipment, instruments, and utensils according to job requirements and manufacture's specification	TLE_AFFP7/8 UT-0b-2
8. Storing tools, equipment, instruments and utensils 9. Minor preventive machine maintenance 10. Disposal of defective tools, equipment, instruments and utensils			LO 3. Perform post-operation activities 3.1. Apply procedures in switching off/plugging off food (fish) processing tools, equipment, instruments and utensils 3.2. Follow steps in cleaning and sanitizing tools, equipment, instruments and	TLE_AFFP7/8 UT-0c-3

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODING
			tools before storing 3.3. Perform minor preventive machine maintenance 3.4. Explain the proper disposal of defective tools, equipment, instruments and utensils	
LESSON 2: PERFORM ESTIMATION AND BASIC CALCULATION (MC)				
1. Weights and measurements 1.1 Gravimetric 1.2 Volumetric 1.3 Lengths, diameter, widths 1.4 Seam measurements 2. Hotness/coldness temperature	The learner demonstrates understanding of basic measurements and calculation.	The learner performs basic measurements and calculation that relate with weight and measurements.	LO 1. Tabulate the recorded data relevant to production of processed food 1.1. Record weights and measurements of raw materials and ingredients 1.2. Summarize/sum up recorded weights and measurements of processed products 1.3. Perform how a seam is measured	TLE_AFFP7/8 MC-0d-1
3. Basic mathematical skills in computing 3.1. Ingredients formulation 3.2. Percentage formulation 3.3. Conversions: ratios and proportions	The learner demonstrates understanding of basic mathematical skills that relate with estimation and basic calculation.	The learner performs basic mathematical skills that relate with weight and measurements.	LO 2. Review various formulations 2.1. Check raw materials, ingredients and percentage formulations according to approved specifications and enterprise requirements 2.2. Re-check percentage formulations of finished products according to approved specifications and enterprise requirements	TLE_AFFP7/8 MC-0d-2
4. Spoilage and rejects 5. Recoveries and yields	The learner demonstrates understanding of basic mathematical skills that relate with spoilage, rejects and the percentage of recovery of yields.	The learner exhibits basic mathematical skills that relate with computation of percentage of spoilage, rejects and recovery of yields.	LO 3. Calculate the production inputs and output 3.1. Compute for the percentage equivalents of actual spoilage and rejects 3.2. Calculate the percentage of actual yields and recoveries according to enterprise requirements 3.3. Record calculated data according to enterprise requirements	TLE_AFFP7/8 MC-0e-3
6. Basic mathematical computation of production costs 6.1. Ingredients formulations	The learner demonstrates understanding of basic computation of production	The learner computes for production costs and performs simple record keeping.	LO 4. Compute for the costs of production 4.1. Follow the standard procedures in	TLE_AFFP7/8 MC-0e-4

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODING
6.2. Percentage formulations 6.3. Conversions 6.4. Ratios and proportion 6.5. Spoilage and rejects 6.6. Percentage of recoveries and rejects 6.7. Simple record keeping	costs and simple record keeping.		4.2. Validate the computed costs of production according to enterprise production requirements	
LESSON 3: INTERPRET PLANS AND DRAWINGS (ID)				
1. Fish processing activities 2. Layout of fish processing area 3. Signs and symbols in layout plan	The learner demonstrates understanding of interpreting plans and drawings that relate with basic fish processing activities.	The learner interprets plans and drawings that relate with basic fish processing activities.	LO 1. Interpret a layout plan 1.1. Explain the meanings of signs and symbol used in lay outing plan for fish processing activity 1.2. Interpret layout plan for fish processing area according to standard set	TLE_AFFP7/8 ID-0f-1
4. Packaging fish products 5. Designing packaging materials 6. Labels and symbols used in packaging	The learner demonstrates understanding of basic principles of design, labels and symbols used in packaging fish products.	The learner creates an acceptable packaging for fish products.	LO 2. Perform outer packaging procedures 2.1. Design packaging materials for fish products 2.2. Label packaged fish products according to quality control standards	TLE_AFFP7/8 ID-0f-2
LESSON 4: APPLY FOOD SAFETY AND SANITATION (OS)				
1. GMP requirements on personal hygiene 2. Personal protective equipment 3. Workplace health and safety requirements 4. Good grooming 5. Sanitizing PPE	The learner demonstrates understanding of basic principles and rules to be observed to ensure food safety and sanitation when he/she packages fish products.	The learner observes basic principles and rules to be observed to ensure food safety and sanitation when he/she packages fish products.	LO 1. Observe personal hygiene and good grooming 1.1. Explain the importance of good grooming in a workplace 1.2. Follow the procedures in cleaning, checking and sanitizing personal protective equipment	TLE_AFFP7/8 OS-0g-1
6. Safety measures and practices 7. First aid 8. Practices in manufacturing good food 9. TQM 10. Codes and regulations			LO 2. Implement food safety practices 2.1. Discuss the sanitary practices in food safety 2.2. Explain the importance of cleanliness and sanitation in a workplace 2.3. Observe practices in manufacturing good food 2.4. Perform first aid according to workplace standard and operating	TLE_AFFP7/8 OS-0g-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODING
			procedures	
11. HACCP 12. Waste disposal 13. Environmental protection 14. Monitoring practices 15. Record keeping procedures			LO 3. Conduct work in accordance with environmental policies and procedures 3.1. Explain the importance of implementing the HACCP plan 3.2. Discuss how a sound monitoring practices is done 3.3. Develop a plan to document and monitor corrective actions on environmental protection	TLE_AFFP7/8 OS-0h-3
16. Environmental hazards 17. Prevention and control of environmental risks 18. Disaster preparedness and identification 19. Risk assessment and control options 20. Identifying and responding to hazards 21. Investigating incidents 22. Management and utilization of environmental resources 23. Practices on resource utilization and wastage 24. Handling hazardous waste 25. Rehabilitation procedures			LO 4. Participate in improving environmental practices at work 4.1. Explain environmental hazards 4.2. Discuss how environmental risks, hazards and incidents can be prevented and controlled 4.3. Plan ways in managing and utilizing resources in the environment 4.4. Suggest ways to avoid wastage 4.5. Observe rehabilitation procedures	TLE_AFFP7/8 OS-0i-j-4

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(160 hours)

Course Description:

This a course which leads to the specialization on **Food (Fish) Processing** National Certificate (NC I), it covers (4) four of the (7) seven core competencies that a high school student ought to possess, namely: 1) implement sampling procedure; 2) inspect and sort materials and products; 3) dispense non-bulk ingredients; and 4) prepare raw and packaging materials and supplies for processing;

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction <ol style="list-style-type: none"> Basic concepts in Food (Fish) Processing Relevance of the course Career opportunities 	The learner demonstrates understanding of basic concepts and underlying theories in food (fish) processing.	The learners independently develop the skills in food processing and demonstrate the core competencies in food processing prescribed in TESDA Training Regulation.	<ol style="list-style-type: none"> Explain basic concepts food (fish) processing Discuss the relevance of the course Explain on opportunities for food (fish) processing as a career 	
Personal Entrepreneurial Competencies (PECS)				
<ol style="list-style-type: none"> Assessment of Personal Competencies and Skills (PECs) vis-à-vis a practicing entrepreneur/ employee in locality/town. <ol style="list-style-type: none"> Characteristics Attributes Lifestyle Skills Traits Analysis of PECs in relation to a practitioner Align, strengthen and develop ones PECs based on the results 	The learner demonstrates understanding of one's Personal Competencies and Skills (PECs) in Food Processing	The learner recognizes his/her Personal Entrepreneurial Competencies and Skills (PECSs) and prepares an activity plan that aligns with that of a practitioner/entrepreneur in Food Processing	LO 1. Recognize Personal Entrepreneurial Competencies and Skills (PECSS) needed in Food Processing <ol style="list-style-type: none"> Assess one's PECSS: characteristics, attributes, lifestyle, skills, traits Assess practitioner's: characteristics, attributes, lifestyle, skills, traits Compare one's PECSS with that of a practitioner /entrepreneur Align one's PECSS with that of a practitioner/entrepreneur 	TLE_PEC9-1200-1
Environment and Marketing (EM)				
Market (Town) <ol style="list-style-type: none"> Key concepts of Market Players in the Market (Competitors) Products & services available in the market 	The learner demonstrates understanding of environment and market in Food Processing in one's town/municipality.	The learner independently creates a business vicinity map reflective of potential Food Processing market within the locality/town.	LO 1. Recognize and understand the market in Food Processing <ol style="list-style-type: none"> Identify the players/ competitors within the town Identify the different products/services available in the market 	TLE_EM9-1200-1
Market (Customer) <ol style="list-style-type: none"> Key concepts of Identifying and Understanding the Consumer 			LO 2. Recognize the potential customer/market in Food Processing <ol style="list-style-type: none"> Identify the profile of potential 	TLE_EM9-1200-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
5. Consumer Analysis through: 5.1. Observation 5.2. Interviews 5.3. FGD 5.4. Survey			customers 2.2. Identify the customer's needs and wants through consumer analysis 2.3. Conduct consumer/market analysis	
6. Generating Business Idea 6.1. Key concepts of Generating Business Ideas 6.2. Knowledge & Skills, Passions, Interests 6.3. new application 6.4. Irritants 6.5. Striking ideas (new concept) 7. Serendipity Walk			LO 3. Create new business ideas in Food Processing business by using various techniques 3.1. Explore ways of generating business idea from ones' own characteristics/attributes 3.2. Generate business ideas using product innovation from irritants, trends and emerging needs 3.3. Generate business ideas using Serendipity Walk	TLE_EM9-1200-3
LESSON 1: IMPLEMENT SAMPLING PROCEDURES (SA) <i>(Note: Research components should be included in all activities)</i>				
1. Sampling requirements 2. Types of samples 3. Sampling plan 4. Basic sampling principles, with emphasis on sampling which is random and representative of the lot 5. Sampling techniques 6. Basic characteristics of samples to be handled 7. Preparation of requirements for samples 8. Awareness of Codes or Regulations such as HACCP and GMP 9. Preparing sampling tools and equipment 10. Using PPE	The learner demonstrates understanding on implementing or employing sampling procedures.	The learner demonstrates independently the given procedures of implementing or employing sampling procedures.	LO 1. Prepare for sampling 1.1. Identify sampling requirements in accordance with sampling plan 1.2. Prepare sampling equipment container and labels according to sampling requirements	TLE_AFFP9-12SA-Ia-c-1
11. Applying basic sampling principles, with emphasis on sampling which is random and representative of the lot 12. Sampling plan, procedures and techniques 13. Collecting, handling and preparing samples			LO 2. Collect samples 2.1. Collect and transfer samples under controlled condition 2.2. Handle samples to preserve them and the source integrity according to sampling requirement and OHS requirements	TLE_AFFP9-12SA-Id-j-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
14. Using sampling materials, tools and equipment 15. Recording sample information 16. Sample information 17. Basic characteristics of samples to be handled 18. Following work procedures 19. Reporting defected samples 20. Handling, preservation and storage requirements for samples 21. Maintaining clean and safe workplace 22. Practicing 5S and 3Rs principles 23. Awareness of Codes or Regulations such as HACCP and GMP 24. Using PPE			2.3. Identify and report defects or abnormalities in source material and/or sample according to workplace requirements 2.4. Record sample information according to workplace procedures 2.5. Clean and maintain the workplace according to workplace standards	
LESSON 2: INSPECT AND SORT RAW MATERIALS AND PRODUCT (IS) <i>(Note: Research components should be included in all activities)</i>				
1. Preparation of tools for inspection and sorting 2. Checking, cleaning and sanitation of equipment and tools. 3. Preparation of office materials/supplies and equipment. 4. Cleaning and sanitation procedures 5. Food safety principles and practices 6. Awareness of Codes or Regulations such as Hazard Analysis Critical Control Point (HACCP) and Good Manufacturing Practice (GMP)	The learner demonstrates understanding inspecting and sorting raw materials and product to be used.	The learner demonstrates independently the given procedures on inspecting and sorting raw materials to be used.	LO 1. Prepare equipment and tools 1.1. Prepare equipment and tools for inspection and sorting in accordance with manufacturer's specifications and workplace requirements 1.2. Check, clean and sanitize equipment and tools are in accordance with manufacturer's specifications and workplace requirements 1.3. Prepare office equipment and materials/supplies needed in accordance with approved specifications	TLE_AFFP9-12IS-IIa-c-1
7. Types of raw materials and product 8. Procedures and techniques inspection and sorting of raw materials or products 9. Operating equipment 10. Grading of raw materials or products 11. Defects of raw materials 12. Defects of semi-processed/finished products 13. Physical properties for sorting food			LO 2. Inspect and sort the materials and product 2.1. Receive and handle raw materials and product according to standard operating procedures 2.2. Conduct inspection and sorting according to required specifications, OHS requirements and workplace procedures	TLE_AFFP9-12IS-IIId-h-2

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14. OHS requirements 15. Manufacturer's requirements 16. Workplace requirements 17. Record and report making			2.3. Undertake grading undertaken, as necessary, according to raw material or product requirements 2.4. Inspect raw materials and products for visible signs of defects according to set processing and purchasing specifications 2.5. Sort raw materials and products in accordance with physical property specifications 2.6. Weigh and keep inspected and sorted raw materials and products in accordance with standard operating procedures 2.7. Report rejected/sub-standard raw materials and products are to appropriate person and/or disposed according to organizational guidelines	
18. Cleaning and storing equipment and tools after use 19. 5S principle 20. Proper waste disposal 21. Recycling/by-product utilization (3Rs principles) 22. Environmental protection and concerns 23. OHS requirements 24. Manufacturer's requirements 25. Workplace requirements 26. Completing record and report			LO 3. Complete inspection and sorting activity 3.1. Clean and keep equipment and tools according to manufacturers' specifications and workplace procedures 3.2. Complete and report records according to workplace procedures	TLE_AFFP9-12IS-III-j-3
LESSON 3: DISPENSE NON-BULK INGREDIENTS (NB) <i>(Note: Research components should be included in all activities)</i>				
1. Preparing materials and equipment for dispensing 2. Inspection of materials (Non-bulk ingredients / additives) 3. Types of non-bulk ingredients / additives 4. Workplace requirements 5. Contamination and food safety issues related to dispensing	The learner demonstrates understanding on dispensing non-bulk ingredients.	The learner demonstrates independently the given method of dispensing non-bulk ingredients.	LO 1. Prepare to dispense ingredients 1.1. Inspect materials to confirm type, quality clearance, quantities and identify any obvious contamination or non-conformance with workplace requirements 1.2. Select appropriate measuring/dispensing and weighing	TLE_AFFP9-12NB-IIIa-e-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
6. Selection of appropriate measuring/dispensing equipment) 7. Purpose and basic principles of the dispensing process 8. Quality characteristics and related handling requirements of materials 9. Ensuring availability of containers/bags and labels 10. Pre-start checks 11. Manufacturer's specifications 12. Personal protective equipment (PPE) 13. OHS requirements			equipment according to dispensing requirements 1.3. Confirm availability of containers/bags and labels according to dispensing requirements 1.4. Carry out pre-start checks according to manufacturer's specifications and workplace procedures 1.5. Use appropriate personal protective equipment (PPE) according to workplace procedures and occupational health and safety (OHS) requirements	
14. Measuring and/or weighing ingredients 15. Dispensing ingredients 16. Purpose and basic principles of the dispensing process 17. Monitoring measuring/dispensing equipment 18. Operating and maintaining the measuring/ dispensing equipment 19. Following work procedures 20. Corrective action implementation 21. Basic operating principles of equipment 22. Typical equipment malfunctions and related causes 23. Contamination and food safety issues related to dispensing 24. Quality characteristics and related handling requirements of materials 25. Maintaining of workplace 26. Workplace requirements (housekeeping standards, 5S Principles, etc.) 27. Manufacturer's specifications 28. OHS hazards and controls 29. Using appropriate Personal protective equipment (PPE)			LO 2. Measure and/or weigh ingredients 2.1. Weigh /measure non-bulk ingredients and additives according to production requirements 2.2. Label dispensed ingredients according to workplace procedures 2.3. Monitor accurate of measuring/dispensing equipment to identify variation in operating conditions according to production requirements 2.4. Report identify variation in equipment operation maintenance requirements according to workplace reporting requirements 2.5. Maintain workplace according to housekeeping standards	TLE_AFFP9-12 NB -IIIIf-j-2
30. Cleaning and sanitizing of dispensing equipment			LO 3. Complete the dispensing process 3.1. Clean dispensing equipment according	TLE_AFFP9-12 NB -IVa-

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
31. Maintaining and storage of dispensing equipment 32. Identifying and reporting unacceptable equipment/utensils 33. Following work procedures 34. Completing records and reports			to manufacturer's specifications and workplace procedures 3.2. Identify maintenance requirements and unacceptable equipment/utensil conditions according to workplace procedures 3.3. Report on the unacceptable equipment/utensil according to workplace procedures 3.4. Records are completed according to workplace procedures	b-3
LESSON 4: PREPARE RAW AND PACKAGING MATERIALS AND SUPPLIES FOR PROCESSING (PR) <i>(Note: Research components should be included in all activities)</i>				
1. Types raw materials and processing supplies 2. Types of packaging materials 3. Required specification 4. Selecting raw materials 5. Confirming raw/packaging materials and supplies and their availability 6. Receiving and handling raw/packaging materials and supplies 7. Placing in the receiving the raw/packaging materials and supplies 8. Production requirements 9. OHS requirements	The learner demonstrates understanding of preparing raw and packaging materials for food processing.	The learner demonstrates independently the given procedures in preparing raw and packaging materials for food processing.	LO 1. Select raw and packaging materials and supplies for processing. 1.1. Confirm raw and packaging materials and supplies for food processing and their availability according to production requirements 1.2. Receive and handle raw and packaging materials and supplies for food processing according to workplace and OHS requirements 1.3. Place raw and packaging materials and supplies for food processing in the receiving bin according to required specifications	TLE_AFFP9-12PR-IVc-f-1
10. Principles and procedures for preparing raw materials 11. Proper handling of raw and packaging materials and supplies 12. Identification and proper use of cleaning/washing equipment, implements and utilities 13. Proper cleaning and/or washing procedure 14. Food safety principles and practices 15. Recording and reporting procedures 16. 5S principle			LO 2. Prepare raw and packaging materials and supplies 2.1. Wash or clean materials according to required specifications. 2.2. Prepare raw and packaging materials and supplies according to specifications 2.3. Complete records according to workplace requirements	TLE_AFFP9-12PR-IVg-j-2

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JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
17. Proper waste disposal (3Rs principle) 18. Environmental protection and concerns 19. Awareness of Codes or Regulations such as HACCP and GMP 20. OHS requirements 21. Using PPE				

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING
(160 hours)

Course Description:

This a course which leads to the specialization on **Food (Fish) Processing** National Certificate (NC I), it covers the remaining (3) three of the (7) seven core competencies that a high school student ought to poses, namely: 1) operate basic equipment; 2) clean and sanitize equipment for processing packaging area; and 3) load and unload raw materials, product and supplies.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction <ol style="list-style-type: none"> Basic concepts in Food (Fish) Processing Relevance of the course Career opportunities 	The learner demonstrates understanding of basic concepts and underlying theories in food (fish) processing.	The learners independently develop the skills in food processing and demonstrate the core competencies in food processing prescribed in TESDA Training Regulation.	<ol style="list-style-type: none"> Explain basic concepts food (fish) processing Discuss the relevance of the course Explain on opportunities for food (fish) processing as a career 	
Personal Entrepreneurial Competencies (PECS)				
<ol style="list-style-type: none"> Assessment of Personal Competencies and Skills (PECs) vis-à-vis a practicing entrepreneur/employee in a province. <ol style="list-style-type: none"> Characteristics Attributes Lifestyle Skills Traits Analysis of PECs in relation to a practitioner Strengthening and further development of ones PECs 	The learner demonstrates understanding of one's Personal Competencies and Skills (PECs) in Food Processing.	The learner independently creates a plan of action that strengthens/ further develops one's PECs in Food Processing.	LO 1. Develop and strengthen personal competencies and skills (PECs) needed Food Processing <ol style="list-style-type: none"> Identify areas for improvement, development and growth Align one's PECs according to his/her business/career choice Create a plan of action that ensures success of his/her business/career choice 	TLE_PECs9-12-00-1
Environment and Marketing (EM)				
<ol style="list-style-type: none"> Product Development Key concepts of developing a product Finding Value Innovation <ol style="list-style-type: none"> Unique Selling Proposition (USP) 	The learner demonstrates understanding of environment and market in Food Processing in one's town/municipality.	The learner independently creates a business vicinity map reflective of potential Food Processing market within the locality/town.	LO 1. Develop a product/service in Food Processing <ol style="list-style-type: none"> Identify what is of "Value" to the customer Identify the customer to sell to Explain what makes a product unique and competitive Apply creativity and Innovative techniques to develop marketable product 	TLE_EM9-12-III0-1

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			1.5. Employ a Unique Selling Proposition (USP) to the product/service	
5. Selecting Business Idea 6. Key concepts of Selecting a: 6.1. Business Idea 6.2. Criteria 6.3. Techniques			LO 2. Select a business idea based on the criteria and techniques set 2.1. Enumerate various criteria and steps in selecting a business idea 2.2. Apply the criteria/steps in selecting a viable business idea 2.3. Determine a business idea based on the criteria/techniques set	TLE_EM9-12-III0-2
7. Branding			LO 3. Develop a brand for the product 3.1. Identify the benefits of having a good brand 3.2. Enumerate recognizable brands in the town/province 3.3. Enumerate the criteria for developing a brand 3.4. Generate a clear appealing product brand	TLE_EM9-12-IV0-3
LESSON 5: OPERATE EQUIPMENT (OE) <i>(Note: Research components should be included in all activities)</i>				
1. Types, characteristics and functions of basic equipment 2. Selection and preparation of equipment for use 3. Pre-operational checks and procedures 4. Identifying and reporting faulty and damaged machine/equipment 5. Identifying required training for equipment operation 6. Notifying and reporting appropriate persons 7. Apply safe workplace practices and procedures 8. Using personal protective equipment (PPE) 9. OHS requirements	The learner demonstrates understanding in operating appropriate equipment for food (fish) processing.	The learner demonstrates independently the given procedures in basic operation of equipment needed in food (fish) processing including recognition of functional and quality equipment and its maintenance following specific procedures and instructions.	LO 1. Select and prepare equipment for use 1.1. Identify and access basic machine/equipment required to complete tasks in accordance with assignment instructions and workplace requirements 1.2. Carry out routine pre-operational checks according to manufacturers' specifications and workplace procedures 1.3. Identify and report faulty and damaged machine/equipment according to workplace procedures 1.4. Identify and notify appropriate person(s) on any training required to operate machine/ equipment according to supplier and workplace requirements	TLE_AFFP9-12OE-Ia-e-1

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
10. Use of appropriate PPE 11. Practicing OHS 12. Following manufacturer's specification 13. Operating machine/equipment 14. Identifying and reporting out-of-specification product, process and equipment performance. 15. Workplace procedures			LO 2. Operate equipment 2.1. Select, use and maintain suitable personal protective equipment in accordance with occupational health and safety (OHS) requirements, and manufacturers' specifications 2.2. Operate machine/equipment in a safe and controlled manner in accordance with OHS requirements and manufacturers' specifications 2.3. Identify and report out-of-specification product, process and equipment performance according to workplace procedures	TLE_AFFP9-12OE-If-j-IIa-e-2
16. Shutting-down machine/equipment 17. Locate emergency stop functions on equipment 18. Routine maintenance procedures 19. Cleaning and sanitation procedures for work area and equipment 20. Security and storage of equipment and materials 21. Lock out and tag out procedures 22. Safe workplace procedures 23. Emergency procedures 24. Reporting faulty or damaged machine/equipment 25. Manage wastes (reduce, reuse and recycle 3Rs) 26. Reporting and documentation requirements and processes 27. Relevant legislative provisions including OHS requirements 28. Awareness of Codes or Regulations such as HACCP and GMP 29. Apply safe workplace practices and procedures			LO 3. Maintain equipment and resources 3.1. Shut down machine/equipment according to workplace procedures and manufacturers' specifications 3.2. Clean and maintain work area in accordance with workplace requirements 3.3. Clean, maintain and store tools and machine/ equipment in accordance with workplace requirements and manufacturers' specifications 3.4. Report faulty or damaged machine/equipment for repair or replacement in accordance with workplace procedures 3.5. Manage wastes generated according to workplace procedures and 3R principle 3.6. Complete and maintain records and reports in accordance with industry, legislative and workplace requirements	TLE_AFFP9-12OE-IIIf-j-3

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
30. Use of appropriate PPE				
LESSON 6: CLEAN AND SANITIZE EQUIPMENT AND PROCESSING/PACKAGING AREA (CS) <i>(Note: Research components should be included in all activities)</i>				
1. Preparing for cleaning equipment and processing/packaging area 2. Preparing supplies, materials and utilities for cleaning and sanitation 3. Purpose and basic principles of cleaning and sanitation 4. Consequences of contamination of process flows by cleaning solutions and related safeguards 5. Cleaning and sanitation requirements for equipment and processing/packaging area 6. Methods used to render equipment and processing/packaging area safe to clean and sanitize 7. Characteristics and functions of cleaning and sanitizing chemicals, including proper handling, use and storage 8. Purpose and limitations of protective clothing and equipment 9. Practicing OHS 10. Regulatory/ Legislative requirements 11. Using PPE	The learner demonstrates understanding of cleaning and sanitizing the equipment and work areas which include the food processing and packaging areas	The learner independently demonstrates the given procedures in cleaning and sanitizing the food processing equipment and packaging areas.	LO 1. Prepare for cleaning 1.1. Identify cleaning/ sanitizing supplies and materials, and utilities 1.2. Confirm availability of cleaning/sanitizing supplies and materials, and utilities according to cleaning and sanitizing requirements 1.3. Prepare mixture of sanitizing solutions, as necessary, according to workplace requirements and application 1.4. Clear equipment and processing/packaging area in preparation for cleaning according to workplace requirements and manufacturer's specifications. 1.5. Render safe to clean the processing/packaging area according to workplace procedures and manufacturer's specifications	TLE_AFFP9-12CS-IIIa-e-1
12. Cleaning and sanitizing equipment and processing/packaging area 13. Inspecting equipment and processing/packaging area 14. Identifying and reporting unacceptable equipment and processing/packaging area 15. Storing cleaning equipment and chemicals 16. Proper disposal of waste from cleaning process 17. Restoring equipment and			LO 2. Clean and sanitize equipment and processing / packaging area to meet workplace requirements. 2.1. Clean and sanitize equipment and processing/packaging area according to workplace procedures, OHS requirements, and manufacturer's specifications 2.2. Inspect equipment and processing/packaging area according to required operating conditions and cleanliness	TLE_AFFP9-12CS-IIIIf-j-2

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
processing/packaging area to operating order 18. Completing records 19. Regulatory/legislative requirements 20. Workplace requirements 21. OHS requirements 22. Manufacturer's specifications			2.3. Identify and report unacceptable equipment and processing/ packaging area conditions according to workplace procedures 2.4. Store cleaning equipment and chemicals according to workplace procedure 2.5. Dispose waste from cleaning process according to workplace and OHS requirements, and regulatory/legislative requirements 2.6. Restore equipment and processing/packaging area to operating order according to workplace procedures 2.7. Complete records in line with workplace requirements	
LESSON 7: LOAD AND UNLOAD RAW MATERIALS, PRODUCTS AND SUPPLIES (LD) <i>(Note: Research components should be included in all activities)</i>				
1. Selection of loading and unloading procedures 2. Basic principles and procedures for loading and unloading 3. Identifying dangerous or hazardous raw materials, products and/or supplies 4. Identifying raw materials, products and/or supplies requiring special handling and/or documentation 5. Packing and unpacking raw materials, products and/or supplies 6. Loading raw materials, products and/or supplies 7. Selection and using of lifting aids and appliances 8. Unloading activities 9. Identifying and controlling hazards and risks 10. Material loading regulations 11. Workplace procedures 12. OHS requirements	The learner demonstrates understanding of proper procedure in loading and unloading of raw materials, products and supplies in food (fish) processing.	The learner demonstrates independently the given procedures in loading and unloading raw materials, products and supplies in food (fish) processing in accordance with workplace requirement.	LO 1. Load and unload raw materials, products and supplies. 1.1. Select loading and unloading procedures according to workplace and OHS requirements 1.2. Identify and handle dangerous or hazardous raw materials, products and/or supplies in accordance with OHS, regulatory and legislative requirements 1.3. Identify raw materials, products and/or supplies requiring special handling. 1.4. Follow special handling procedures according to workplace requirements 1.5. Pack and unpack raw materials, products and/or supplies according to workplace requirements 1.6. Load raw materials, products and/or supplies in accordance with relevant material loading regulations and workplace procedures	TLE_AFFP9-12LD-IVa-e-1

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
13. Regulatory and legislative requirements			1.7. Select and use lifting aids and appliances according to loading procedures in compliance with workplace requirements and legislation 1.8. Conduct unloading activities safely and efficiently according to workplace requirements 1.9. Identify and control hazards and risks according to OHS and workplace requirements. 1.10. Implement controls according to OHS and workplace requirements.	
14. Proper distribution of load 15. Methods of securing and protecting load 16. Warehouse plan/Site layout and obstacles 17. Workplace operating procedures 18. Hazard and risk identification and control 19. Material loading regulations 20. Workplace procedures 21. OHS requirements 22. Regulatory and legislative requirements 23. PPE protective/safety gadgets 24. Awareness of Codes or regulations such as HACCP and GMP			LO 2. Secure and protect load 2.1. Check load distribution to ensure that it is even, legal and within the working capacity according to workplace procedures 2.2. Check load to ensure that dangerous goods and hazardous substances are appropriately segregated in accordance with regulatory and workplace requirements 2.3. Secure load using the correct load restraint and protection equipment, carrying and garage conditions according to workplace and OHS requirements 2.4. Protect the load in accordance with legal and workplace safety requirements	TLE_AFFP9-12LD-IVf-h-2
25. Selection and checking of raw materials, products and/or supplies inclusive of travel documents and permits 26. Completing relevant records 27. Legislative requirements 28. Workplace requirements			LO 3. Complete documentation 3.1. Select and check raw materials, products and/or supplies for ability to travel in accordance with relevant regulations/permit requirements 3.2. Complete all required records in accordance with legislative and workplace requirements	TLE_AFFP9-12LD-IVi-j-3

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING
(160 hours)

Course Description:

This a course which leads to the specialization on **Food (Fish) Processing** National Certificate (NC II), it covers (3) three of the (4) four core competencies that a high school student ought to poses, namely: 1) process foods by salting, curing & smoking; 2) process foods by fermentation and pickling; and 3) process food by sugar concentration.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Basic concepts in Food (Fish) Processing 2. Relevance of the course 3. Career opportunities	The learner demonstrates understanding of basic concepts and underlying theories in food (fish) processing.	The learners independently develop the skills in food processing and demonstrate the core competencies in food processing prescribed in TESDA Training Regulation.	1. Explain basic concepts food (fish) processing 2. Discuss the relevance of the course 3. Explain on opportunities for food (fish) processing as a career	
Personal Entrepreneurial Competencies (PECS)				
1. Assessment of Personal Competencies and Skills (PECs) vis-à-vis a practicing entrepreneur/ employee in locality/town. 1.1. Characteristics 1.2. Attributes 1.3. Lifestyle 1.4. Skills 1.5. Traits 2. Analysis of PECs in relation to a practitioner 3. Align, strengthen and develop ones PECs based on the results	The learner demonstrates understanding of one's Personal Competencies and Skills (PECs) in Food Processing.	The learner recognizes his/her Personal Entrepreneurial Competencies and Skills (PECSs) and prepares an activity plan that aligns with that of a practitioner/entrepreneur in Food Processing.	LO 1. Recognize Personal Entrepreneurial Competencies and Skills (PECSs) needed in Food Processing 1.1. Assess one's PECSS: characteristics, attributes, lifestyle, skills, traits 1.2. Assess practitioner's: characteristics, attributes, lifestyle, skills, traits 1.3. Compare one's PECSS with that of a practitioner /entrepreneur 1.4. Align one's PECSS with that of a practitioner/entrepreneur	TLE_PECs9-12-00-1
Environment and Marketing (EM)				
Market (Town) 1. Key concepts of Market 2. Players in the Market (Competitors) 3. Products & services available	The learner demonstrates understanding of environment and market in Food Processing in one's town/municipality.	The learner independently creates a business vicinity map reflective of potential Food Processing market within the locality/town.	LO 1. Recognize and understand the market in Food Processing 1.1. Identify the players/ competitors within the town 1.2. Identify the different	TLE_EM9-12-00-1

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JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
in the market			products/services available in the market	
Market (Customer) 1. Key concepts of Identifying and Understanding the Consumer 2. Consumer Analysis through: 2.1. Observation 2.2. Interviews 2.3. FGD 2.4. Survey			LO 2. Recognize the potential customer/market in Food Processing 2.1. Identify the profile of potential customers 2.2. Identify the customer's needs and wants through consumer analysis 2.3. Conduct consumer/market analysis	TLE_EM9-12-00-2
3. Generating Business Idea 3.1. Key concepts of Generating Business Ideas 3.2. Knowledge & Skills, Passions, Interests 3.3. new application 3.4. Irritants 3.5. Striking ideas (new concept) 3.6. Serendipity Walk			LO 3. Create new business ideas in Food Processing business by using various techniques 3.1. Explore ways of generating business idea from ones' own characteristics/attributes 3.2. Generate business ideas using product innovation from irritants, trends and emerging needs 3.3. Generate business ideas using Serendipity Walk	TLE_EM9-12-00-3
LESSON 1: PROCESS FOOD BY SALTING, CURING AND SMOKING (SL) <i>(Note: Research components should be included in all activities)</i>				
1. Preparing of tools, materials, kitchen utensils and equipment for food curing, salting and smoking 2. Food processing methods- curing, salting and smoking 3. Checking and calibrating apparatus and equipment for the food curing, salting and smoking 4. Cleaning and sanitizing of	The learner demonstrates understanding on processing food by salting, curing and smoking.	The learner demonstrates independently the procedures of processing food by salting, curing and smoking.	LO 1. Prepare equipment, tools, materials and utensils 1.1. Prepare Equipment and tools for salting, curing and smoking in accordance with manufacturer's specifications 1.2. Check, sanitize and calibrate Equipment for the above food processing methods in accordance with manufacturer's specifications 1.3. Prepare and sanitize kitchen utensils	TLE_AFFP9-12SL-Ia-c-1

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
tools, materials, kitchen utensils and equipment for food curing, salting and smoking 5. Office materials, supplies and equipment 6. Occupational Safety and Hazard Standards (OSHS) 7. Clean and sanitize working area 8. Wearing of Personal Protective Equipment (PPE) 9. 5S principles 10. Recycling/by-product utilization (3Rs principles) 11. Environmental protection and concerns			for the above food processing methods in accordance with manufacturer's specifications 1.4. Prepare office equipment and materials/ supplies needed in accordance with approved specifications	
13. Different types of raw materials 14. Sorting and grading of raw materials 15. Cleaning and washing of eggs 16. Skinning and eviscerating of poultry 17. Deskinning, deboning, slicing, chopping and mincing of meat. 18. Cleaning, descaling, eviscerating, deboning, filleting and washing of fish and other marine products 19. OSHS 20. Weighing of raw materials			LO 2. Prepare the raw materials 2.1. Sort and grade raw materials in accordance with specifications 2.2. Prepare eggs for salting in accordance with approved standard procedures 2.3. Prepare poultry for curing in accordance with approved specifications and standard procedures 2.4. Prepare meat for curing in accordance with approved specifications and standard procedures 2.5. Prepare fish/other marine products in accordance with approved specifications and standard procedures 2.6. Weigh prepared raw materials in accordance with approved specifications	TLE_AFFP9-12SL-Id-f-2

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
21. Measuring and weighing salt and other ingredients and adjuncts for salting and curing 22. Measuring and weighing ingredients for pumping pickle, cover pickle and dry cure mixtures 23. OSHS			LO 3. Prepare salting and curing solutions and mixtures 3.1. Measure and weigh required salt and other ingredients and adjuncts for salting and curing in line with approved specifications and OHS requirements 3.2. Measure and weigh required ingredients for pumping pickle, cover pickle and dry cure mixture in line with approved specifications	TLE_AFFP9-12SL-Ih-i-3
QUARTER 2				
1. Mixing of curing ingredients and prepared materials 2. Curing of mixture at room and refrigerated temperature. 3. Curing of different raw materials			LO 4. Cure the materials 4.1. Mix curing mixture and prepared materials in accordance with approved specifications and enterprise requirements 4.2. Cure mixture at room temperature or refrigerated temperature at appropriate number of days 4.3. Submerged materials being cured in solution to obtain even distribution/ penetration of cure mixture in line with approved specifications	TLE_AFFP9-12SL-IIa-b-4
4. Draining from curing solution and washing of cured food 5. Cooking of cured products 6. Different cooking medium 7. Smoking of cured and cooked products 8. Cooking the cured and smoked products 9. Transferring and cooling of cooked products 10. Finishing works for salting eggs (boiling and dipping to			LO 5. Finish the cured materials 5.1. Wash and drain cured food materials from the solution, in accordance with standard operating procedures 5.2. Cook drained cured materials in appropriate cooking medium 5.3. Smoke the cooked and cured products according to specifications 5.4. Cook the cured and smoked products 5.5. Transfer the cooked products to	TLE_AFFP9-12SL-IIc-e-5

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
ghana solution) 11. Characteristics of quality cured, smoked and salted products			containers and cool according to specifications. 5.6. Boil and dip in grana solution salted eggs according to approved specifications	
12. Documenting of daily production records 13. Production data 14. Format of recording			LO 6. Prepare production report 6.1. Document daily production input according to standard operating procedures 6.2. Record and present all production data according to prescribed format	TLE_AFFP9-12SL-IIIf-g-6
LESSON 2: PROCESS FOODS BY FERMENTATION AND PICKLING (FR) <i>(Note: Research components should be included in all activities)</i>				
1. Preparing of tools, materials, utensils and equipment for food fermentation and pickling 2. Food processing methods-fermentation and pickling 3. Checking and calibrating apparatus and equipment for the food fermentation and pickling 4. Cleaning and sanitizing of tools, materials, utensils and equipment for food fermentation and pickling 5. Occupational Safety and Hazard Standards (OSHS)	The learner demonstrates understanding food processing by fermentation and pickling.	The learner independently demonstrates procedures of fermentation and pickling.	LO 1. Prepare equipment, tools and utensils 1.1. Select equipment, tools and utensils for fermentation and pickling are according to requirements 1.2. Check and calibrate equipment, tools and utensils in accordance with manufacturer's specifications 1.3. Prepare and sanitize equipment/utensils for the above food processing methods are according to manufacturer's specifications	TLE_AFFP9-12FR-IIh-i-1
QUARTER 3				
1. Different types of raw materials for food fermentation and pickling 2. Weighing of raw materials 3. Sorting and grading of raw materials 4. Cleaning, washing, peeling, cutting and slicing of fresh fruits and vegetables			LO 2. Prepare raw materials 2.1. Sort and grade raw materials according to approved criteria and enterprise requirements 2.2. Prepare the sorted and graded fresh fruits and vegetables according to required sizes and shapes 2.3. Prepare fish and other marine products according to specifications	TLE_AFFP9-12FR-IIj-IIIa-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
5. Cleaning, eviscerating, cutting and washing of fish and other marine products 6. OSHS				
7. Preparation of ingredients for alcoholic fermentation 8. Alcoholic fermentation procedures of fruits and vegetables 9. Mixing techniques juice and vegetables 10. Juice extractions and straining 11. Heating of extracted juice 12. Characteristics of quality alcoholic fermented products			LO 3. Perform alcoholic fermentation of fruits and vegetables 3.1. Mix prepared fruit with water according to specifications 3.2. Boil mixture in accordance with specifications and enterprise requirements 3.3. Extract juice in accordance with specifications and enterprise requirements 3.4. Cool and mix extracted juice with other ingredients like sugar and yeast in accordance with specifications 3.5. Ferment juice for 1-2 weeks as required 3.6. Filter and heat fermented juice according to specifications	TLE_AFFP9-12FR-IIIb-d-3
13. Preparation of ingredients for acetic acid/lactic acid fermentation 14. Acetic acid/lactic acid fermentation procedures of fruits and vegetables 15. Mixing techniques 16. Mixture straining/filtering and clarifying 17. Heating of acetous liquid 18. Characteristics of quality acetic acid/lactic acid fermented products			LO 4. Perform acetic acid/ lactic acid fermentation/ pickling of vegetables 4.1. Mix alcoholic liquid with mother vinegar according to specifications 4.2. Ferment mixture for 2-4 weeks according to standard procedures 4.3. Filter mixture and clarify filtrate according to specifications 4.4. Heat acetous liquid according to specifications	TLE_AFFP9-12FR-IIIf-g-4
19. Preparation of ingredients for fermenting of fish and other marine products			LO 5. Ferment fish and other marine products 5.1. Mix fish and other marine with	TLE_AFFP9-12FR-IIIf-h-i-5

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
20. Salt and fish ratio 21. Fermentation procedures of fish and other marine products 22. Mixing techniques 23. Heating of fish paste/sauce 24. Characteristics of quality fermented fish and other marine products			required salt according to mixing requirements 5.2. Ferment the mixture of fresh and other marine products for 1-2 weeks in fermentation vats/vessels according to standard procedures 5.3. Heat fish paste/fish sauce according to standard procedures	
25. Documenting of daily production records 25.1. Daily production input (spoilage, rejects and variances) 25.2. Daily production output (yield, recoveries and variances) 26. Production data 27. Format of recording			LO 6. Prepare production report 6.1. Document daily production input and output according to standard operating procedures. 6.2. Presented all gathered production data presented in prescribed format	TLE_AFFP9-12FR-IIIj-6
QUARTER 4				
LESSON 3: PROCESS FOODS BY SUGAR CONCENTRATION (SC) <i>(Note: Research components should be included in all activities)</i>				
1. Preparing of tools, materials, kitchen utensils and equipment for preserving foods by sugar concentration 2. Checking and calibrating apparatus and equipment for preserving foods by sugar concentration 3. Cleaning and sanitizing of tools, materials, kitchen utensils and equipment for preserving foods by sugar concentration	The learner demonstrates understanding on food processing by sugar concentration.	The learner demonstrates independently the method of food processing by sugar concentration.	LO 1. Prepare Equipment, Tools and Utensils 1.1. Prepare equipment, tools and utensils for preserving foods by sugar concentration in accordance with manufacturer's manual 1.2. Calibrate equipment, tools and utensils in accordance with manufacturer's specifications 1.3. Sanitize equipment, tools and utensils for preserving foods by sugar concentration	TLE_AFFP9-12SC-IVa-b-1
4. Different types of raw materials and its availability for preservation by sugar			LO 2. Prepare the raw materials 2.1. Check availability of raw materials according to required food	TLE_AFFP9-12SC-IVc-d-2

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AGRI – FISHERY - ARTS – FOOD (FISH) PROCESSING

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
concentration 5. Food processing methods- sugar concentration 6. Sourcing of raw materials 7. Sorting of raw materials 8. Cleaning and washing fresh fruits and vegetables, 9. Peeling, slicing chopping and cutting of fresh fruits and vegetables 10. Slicing and cutting procedures of various fruits and vegetables 11. Size reduction method 12. Preparing fruits and vegetables for the following: a. Jelly making b. Marmalade making c. Jam making d. Cooking in syrup 13. Pre-treatment of raw sliced/cut raw materials 14. OSHS			<i>processing methods</i> 2.2. Clean and wash raw materials 2.3. Peel, slice, chop and cut of raw materials according to required sizes and shapes 2.4. Extract juice of the prepared fruits and vegetables through boiling for jelly and marmalade making 2.5. Mix with sugar the prepared finely chopped fruits and vegetables for jam making are mixed with sugar 2.6. Cook in syrup the prepared fruits and vegetables to be preserved	
15. Prepare ingredients for acid, pectic and sugar mixture 16. Adjusting of acid, pectin and sugar mixture 17. Sugar and acid analysis 18. Using refractrometer, jelly and candy thermometer 19. OSHS			LO 3. Prepare acid, pectin and sugar mixture 3.1. Measure required amounts of pectin, sugar and citric acid according to approved specifications 3.2. Mix measured pectin, acid and sugar with chopped fruit pulp/juice extract/pieces of fruits according to approved specifications	TLE_AFFP9- 12SC-IVe-f-3
20. Procedures in processing steps/ procedures in preserving fruits and vegetables by sugar concentration			LO 4. Cook sugar concentrates 4.1. Cook mixture to required consistency 4.2. Check the desired endpoint as specified	TLE_AFFP9- 12SC-IVg-i-4

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
21. Using Polimeter 22. Checking/testing desired point 23. Characteristics of quality sugar concentrated products				
24. Document daily production report input, output and variances 25. Production data 26. Format of recording			LO 5. Prepare production report 5.1. Document daily production report input, output and variances are documented according to enterprise requirements 5.2. All production data gathered are recorded and presented in prescribed format	TLE_AFFP9-12SC-IVj-5

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(160 hours)

Course Description:

This a course which leads to the specialization on **Food (Fish) Processing** National Certificate (NCI I), it covers the remaining (1) one of the (4) four core competencies that a high school student ought to poses, namely: 1) Package finished/processed processed food products. An additional qualification related to Food Processing such as Fish Product Packaging NC II may be offered for the remaining quarter/s of the school year.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Basic concepts in Food (Fish) Processing 2. Relevance of the course 3. Career opportunities	The learner demonstrates understanding of basic concepts and underlying theories in food (fish) processing.	The learners independently develop the skills in food processing and demonstrate the core competencies in food processing prescribed in TESDA Training Regulation.	1. Explain basic concepts food (fish) processing 2. Discuss the relevance of the course 3. Explain on opportunities for food (fish) processing as a career	
Personal Entrepreneurial Competencies (PECS)				
1. Assessment of Personal Competencies and Skills (PECs) vis-à-vis a practicing entrepreneur/employee in a province 1.1 Characteristics 1.2 Attributes 1.3 Lifestyle 1.4 Skills 1.5 Traits 2. Analysis of PECs in relation to a practitioner 3. Strengthening and further development of one's PECs	The learner demonstrates understanding of one's Personal Competencies and Skills (PECs) in Food Processing.	The learner independently creates a plan of action that strengthens/ further develops one's PECs in Food Processing.	LO 1. Develop and strengthen personal competencies and skills (PECs) needed Food Processing 1.1. Identify areas for improvement, development and growth 1.2. Align one's PECs according to his/her business/career choice 1.3. Create a plan of action that ensures success of his/her business/career choice	TLE_PECS9-12-00-1
Environment and Marketing (E M)				
1. Product Development 2. Key concepts of developing a product 3. Finding Value 4. Innovation 4.1. Unique Selling	The learner demonstrates understanding of environment and market in Food Processing in one's town/municipality.	The learner independently creates a business vicinity map reflective of potential Food Processing market within the locality/town.	LO 1. Develop a product/ service in Food Processing 1.1. Identify what is of "Value" to the customer 1.2. Identify the customer to sell	TLE_EM9-12-00-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
4.2. Proposition (USP)			the product to 1.3. Explain what makes a product unique and competitive 1.4. Apply creativity and innovative techniques to develop marketable product 1.5. Employ a Unique Selling Proposition (USP) to the product/service	
5. Selecting Business Idea 6. Key concepts of Selecting a Business Idea 6.1. Criteria 6.2. Techniques			LO 2. Select a business idea based on the criteria and techniques set 2.1. Enumerate various criteria and steps in selecting a business idea 2.2. Apply the criteria/steps in selecting a viable business idea 2.3. Determine a business idea based on the criteria/techniques set	TLE_EM9-12-00-2
7. Branding			LO 3. Develop a brand for the product 3.1. Identify the benefits of having a good brand 3.2. Enumerate recognizable brands in the town/province 3.3. Enumerate the criteria for developing a brand 3.4. Generate a clear appealing product brand	TLE_EM9-12-00-3
LESSON 1: PACKAGE FINISHED/PROCESSED FOOD PRODUCTS (PK) <i>(Note: Research components should be included in all activities)</i>				
1. Different packaging materials 2. Preparation of packaging materials 3. Selection and checking 4. Washing and sterilization	The learner demonstrates understanding in packaging of finished/processed food products.	The learner independently demonstrates the procedures in packaging of finished/processed food products.	LO 1. Prepare packaging equipment, tools and materials 1.1. Check and select packaging	TLE_AFFP9-12PK-Ia-c-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
5. Different packaging equipment and tools and utensils 6. Preparation of different packaging equipment and tools and utensils 7. Monitor operation of packaging equipment 8. Cooling of finished/processed products 9. OSHS			materials according to the finished/processed food products specifications 1.2. Wash and sterilize packaging materials of varying sizes in accordance with manufacturer's specifications 1.3. Prepare appropriate tools and equipment according to specified packaging requirements 1.4. Check packaging equipment according to manufacturer's specifications 1.5. Monitor the operation of packaging equipment to ensure conformity with specified product output 1.6. Cool to room temperature the finished/processed products as required	
10. Packaging of finished products: 10.1. Cured products 10.2. Salted eggs 10.3. Fermented/pickled products 10.4. Cooled processed products 10.5. Canned/bottled products 10.6. Sugar concentrate products 10.7. Dried/dehydrated food materials 11. Quality packaged products specifications 12. OHS requirements in packaging finished products			LO 2. Undertake packaging of finished/processed food products 2.1. Place cooled cured products in appropriate packaging materials 2.2. Place salted eggs in trays/boxes in accordance with specifications 2.3. Package and seal fermented /pickled products hermetically according to enterprise requirements 2.4. Wrap cooled processed products clean according to specifications 2.5. Seal canned/bottled products	TLE_AFFP9-12PK-Id-f-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			hermetically according to approved specifications 2.6. Hot pack sugar concentrated finished products in dry sterile glass bottles 2.7. Package dried/dehydrated food materials in appropriate packaging materials	
13. Purpose and basic principles of the post packaging process 14. Effect of post packaging process on the end product 15. Procedures and requirements in post packaging process 16. Identification, rectification and reporting of out-specification product, process and equipment 17. Taking samples and conducting tests 18. Product changeover 19. Sealing and labeling of packaged products 20. Storage of packaged finished products 21. Cleaning and sanitizing workplace, equipment, tools and utensils 22. Disposing and recycling of wastes 23. Recording of workplace information			LO 3. Perform post packaging procedures 3.1. Seal and label packaged finished/processed food products according to specifications 3.2. Check condition of packaged finished/ processed food products to ensure conformity with specified outputs 3.3. Store packaged finished/processed food products according to required temperature and humidity	TLE_AFFP9-12PK-Ig-h-3
QUARTER 2 LESSON 2: PROCESSED FISH BY VACUUM OR ORDINARY POLY-PACKING (VP) <i>(Note: Research components should be included in all activities)</i>				
1. Introduction to fish packaging 2. Functions of fish packaging and labeling 3. Packaging materials and equipment in plastic bags 4. Checking of packaging equipment and tools 5. Sanitizing packaging materials and equipment 6. Criteria for evaluation of food packages	The learner demonstrates understanding of packaging processed fish products by vacuum or ordinary poly-packing.	The learner demonstrates independently the procedures in packaging processed fish products by vacuum or ordinary poly-packing.	LO 1. Inspect packaging materials, tools and equipment 1.1. Inspect packaging materials for visual defects 1.2. Report to supervisor for appropriate action 1.3. Check packaging equipment and tools for vacuum or ordinary poly packing for the	TLE_AFFP9-12VP-IIa-c-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<p>in plastic bags</p> <p>7. Visual defects in vacuum or ordinary poly packs</p> <p>8. Completing documentation for reporting</p>			<p>required settings in accordance with established standards</p> <p>1.4. Sanitize packaging materials and equipment according to standard operating procedures</p> <p>1.5. Report breakdown in packaging equipment to supervisor for appropriate action</p> <p>1.6. Check labels of packaging materials for required information to ensure conformity with company's regulations and Bureau of Food and Drugs (BFAD) requirements</p> <p>1.7. Complete required documentation for packaging materials, tools and equipment according to workplace requirements</p>	
<p>9. Visual inspection of quality processed fish products for bagging</p> <p>10. Disposal of downgraded/rejected processed fish products</p> <p>11. Weighing and packaging of processed fish products.</p> <p>12. Fish packaging</p> <p>13. Sealing of packaged products</p> <p>14. Labeling of package</p> <p>15. Principles of food quality and safety</p> <p>16. Principles of HACCP, GMP, SSOP</p>			<p>LO 2. Perform inner packaging of processed fish products</p> <p>2.1. Inspect processed fish products after preparatory operations visually for normal characteristics in accordance with manufacturer's specifications</p> <p>2.2. Dispose downgraded/rejected processed fish products according to company's policy</p> <p>2.3. Weigh processed fish products in accordance with approved specifications</p> <p>2.4. Bag processed fish products</p>	TLE_AFFP9-12VP-IIId-g-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			according to prescribed packaging materials 2.5. Seal packaging material with fish products as required 2.6. Place in inner carton the packaged fish products after passing through metal detector 2.7. Label packaged products in accordance to manufacturer's specification	
17. Carton packaging of processed fish in plastic packs 18. Palletization and warehousing 19. Checking conditions of package fish products 20. Random sampling before storage 21. Labeling and storing 22. Workplace safety practices (OSHS)			LO 3. Perform outer packaging procedures 3.1. Fill packaged processed fish products in master carton according to established requirements 3.2. Strap and transfer packaged fish products in cartons to pallet for storing according to specifications 3.3. Check packaged fish products of certain conditions in accordance to established standards 3.4. Conduct random sampling prior to storage 3.5. Label and store packaged fish products according to required temperature	TLE_AFFP9-12VP-IIh-j-3
QUARTER 3 LESSON 3: PACKAGE PROCESSED FISH BY BOTTLING (BO) <i>(Note: Research components should be included in all activities)</i>				
1. Introduction to fish packaging by using glass container 2. Functions of fish packaging (bottling) and labeling 3. Packaging materials and equipment in glass container or bottle	The learner demonstrates understanding of packaging processed fish products by bottling.	The learner demonstrates independently the procedures in packaging processed fish products by bottling.	LO 1. Inspect packaging materials, tools and equipment 1.1. Inspect packaging materials for visual defects 1.2. Report to supervisor the	TLE_AFFP9-12BO-IIIa-c-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
4. Parts of a glass container 5. Packaging materials and equipment in glass containers 6. Defects in glass containers 7. Sanitizing packaging materials, tools and equipment 8. Checking of packaging equipment 9. Documentation and reporting to immediate supervisor on: 10. Criteria for evaluation of food packages in glass containers			defects for appropriate action 1.3. Sanitize packaging materials, tools and equipment according to standard operating procedures 1.4. Check packaging equipment for bottling is checked for the required settings in accordance with standard operating procedures 1.5. Report breakdown in packaging equipment supervisor for appropriate action 1.6. Complete required documentation for packaging materials, tools and equipment according to workplace requirements	
11. Visual inspection of quality processed fish products for bottling 12. Fish packaging in glass containers or bottles 13. Disposal of downgraded/rejected processed fish products 14. Sealing and tampering of bottled products 15. Labeling of bottled products 16. Principles of food quality and safety 17. Principles of HACCP, GMP, SSOP			LO2. Perform bottling of processed fish 2.1. Inspect processed fish products after preparatory operations visually for normal characteristics in accordance with manufacturer's specifications 2.2. Dispose downgraded/rejected processed fish products according to company's policy 2.3. Fill in bottles with processed fish and add with ingredients according to specifications 2.4. Check sealing compound of caps prior to sealing 2.5. Seal bottles immediately after exhausting to meet the required temperature as per	TLE_AFFP9-12BO-IIIId-g-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			<p>established practice</p> <p>2.6. Tamper bottled fish products with proof sealed (if applicable) after retorting and cooling according to approved specifications</p> <p>2.7. Label bottled fish products appropriately with information in accordance to manufacturer's specifications</p>	
<p>18. Carton packaging of processed fish in bottles</p> <p>19. Palletization and warehousing</p> <p>20. Checking conditions of bottled fish products</p> <p>21. Random sampling before storage</p> <p>22. Labeling and storing</p> <p>23. Workplace safety practices (OSHS)</p>			<p>LO 3. Perform Post-Bottling Procedures</p> <p>3.1. Fill with bottled fish products in master carton and seal according to specifications</p> <p>3.2. Strap and transfer packaged fish products in cartons to pallet for storing according to specifications</p> <p>3.3. Check bottled fish products of certain conditions in accordance to established standards</p> <p>3.4. Conduct random sampling is conducted prior to storage.</p> <p>3.5. Label and store packaged fish products according to required temperature</p>	TLE_AFFP9-12BO-IIIh-j-3
QUARTER 4 Lesson 4: PACKAGE PROCESSED FISH BY CANNING (CN) <i>(Note: Research components should be included in all activities)</i>				
<p>1. Introduction to fish canning</p> <p>2. Functions of fish packaging (canning) and labeling</p> <p>3. Packaging materials and equipment in can</p> <p>4. Parts of can</p> <p>5. Defects in can and can ends</p> <p>6. Sanitizing packaging materials, tools</p>	The learner demonstrates understanding of packaging processed fish products by canning.	The learner demonstrates independently the procedures in packaging processed fish products by canning.	<p>LO 1. Inspect packaging materials, tools and equipment</p> <p>1.1. Inspect packaging materials for visual defects and reported to supervisor for appropriate action</p> <p>1.2. Sanitize packaging materials,</p>	TLE_AFFP9-12CN-IVa-c-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
and equipment 7. Checking of packaging equipment and tools 8. Documentation and reporting to immediate supervisor on criteria for evaluation of food packages in can			tools and equipment according to standard operating procedures 1.3. Check packaging equipment for canning for the required settings in accordance with standard operating procedures 1.4. Report breakdown in packaging equipment to supervisor for appropriate action 1.5. Complete required documentation for packaging materials, tools and equipment according to workplace requirements	
9. Visual inspection of quality processed fish products for canning 10. Fish packaging in can 11. Disposal of downgraded/rejected processed fish products 12. Fish packaging in cans 13. Double seam components 14. Double seam defects 15. Principles of food quality and safety 16. Principles of HACCP, GMP, SSOP			LO 2 . Perform canning of processed fish 2.1. Inspect processed fish products after preparatory operations visually for normal characteristics in accordance with manufacturer's specifications 2.2. Dispose downgraded/rejected processed fish products according to company's policy 2.3. Fill cans with processed fish and add with ingredients according to specifications 2.4. Check lids with sealing compound prior to sealing 2.5. Seal cans immediately after exhausting to meet the required temperature as per established practice 2.6. Check cans for visual defects	TLE_AFFP9-12CN-IVd-g-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			after sealing, retorting and cooling according to established requirements 2.7. Label canned fish products with information in accordance to manufacturer's specifications	
17. Carton packaging of processed fish in cans 18. Palletization and warehousing 19. Checking conditions of canned fish products 20. Random sampling before storage 21. Labeling and storing 22. Workplace safety practices (OSHS)			LO3. Perform post -packaging procedures 3.1. Fill with canned fish products in master carton and seal according to specifications 3.2. Strap and transfer packaged fish products in cartons are to pallet for storing according to specifications 3.3. Check canned fish products for certain conditions in accordance to established standards. 3.4. Conduct random sampling prior to storage 3.5. Label and store packaged fish products according to required temperature	TLE_AFFP9-12CN-IVh-j-3

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CODE BOOK LEGEND

Sample: TLE_AFFP9-12LD-IVf-h-2

LEGEND		SAMPLE		DOMAIN/ COMPONENT	CODE
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education Agri-Fishery Food (Fish) Processing	TLE_AF FP 9-12	Personal Entrepreneurial Skills	PECS
	Grade Level	Grade 9/10/11/12		Environment and Marketing	EM
Uppercase Letter/s	Domain/Content/ Component/ Topic	Load and unload raw materials, products and supplies	LD	Use and Maintain Farm Processing Tools, Equipment and Utensils	UT
				Perform Estimation and Basic Calculation	MC
			-	Interpret Plans and Drawings	ID
Roman Numeral <i>*Zero if no specific quarter</i>	Quarter	Fourth Quarter	IV	Apply Food Safety and Sanitation	OS
Lowercase Letter/s <i>*Put a hyphen (-) in between letters to indicate more than a specific week</i>	Week	Week six to eight	f-h	Implement Sampling Procedures	SA
				Inspect and Sort Raw Materials and Product	IS
			-	Dispense Non-bulk Ingredients	NB
Arabic Number	Competency	Secure and protect load	2	Prepare Raw and Packaging Materials and Supplies for Processing	PR
				Operate Equipment	OE
				Clean and Sanitize Equipment and Processing/Packaging Area	CS
				Load and Unload Raw Materials, Products and Supplies	LD

Technology-Livelihood Education and Technical-Vocational Track specializations may be taken between Grades 9 to 12.

Schools may offer specializations from the four strands as long as the minimum number of hours for each specialization is met.

Please refer to the sample Curriculum Map on the next page for the number of semesters per Agri-Fishery Arts specialization and those that have pre-requisites. Curriculum Maps may be modified according to specializations offered by a school.

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SAMPLE AGRICULTURE AND FISHERY ARTS CURRICULUM MAP

No.	Grade 7/8 (Exploratory)				Grade 9	Grade 10	Grade 11	Grade 12
1	EXPLORATORY	4 semesters	Crop Production (NC I)	4 semesters	*Landscape Installation and Maintenance (NC II)			
2					4 semesters			
3					*Pest Management (NC II)			4 semesters
4					*Rice Machinery Operation (NC II)			4 semesters
5					*Organic Agriculture (NC II)			4 semesters
6			Animal Production (NC II)	6 semesters	*Artificial Insemination: Swine (NC II)			2 sems
7					*Artificial Insemination: Ruminants (NC II)			2 sems
8					*Slaughtering Operation			2 sems
9			Horticulture (NC II)	8 semesters				
10								
11								
11			Food (Fish) Processing (NC II)	8 semesters				
12								
13								
12	Aquaculture (NC II)	4 semesters	Fish Nursery Operation (NC II)	2 sems	*Fish or Shrimp Grow Out Operation (Non NC)		2 sems	
13					*Fish Wharf Operation (NC II)		2 sems	

*Please note that these subjects have prerequisites mentioned in the CG.