K to12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI – FISHERY - ARTS – AQUACULTURE

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

		Specialization	Number of Hours	Pre-requisite
1.	AGRI-FISHERY ARTS	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.	HOME ECONOMICS	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	

		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 – AQUACULTURE
Grades 7 to 8 (Exploratory)

Course Description:

This Module is an exploratory and introductory course which leads to **Aquaculture** 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 posses: 1) using tools, equipment and paraphernalia; 2) performing mensuration and calculation; 3) apply safety measures in farm operation; and 4) interpreting technical designs and plans.

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 Aquaculture 2. Relevance of the course 3. Career opportunities	The learner demonstrates understanding of basic concepts and underlying theories in aquaculture.	The learner independently demonstrates common competencies in aquaculture as prescribed by TESDA Training Regulations.	1. Explain basic concepts in aquaculture 2. Discuss the relevance of the course 3. Explore career opportunities in aquaculture	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PECS)				
1. Assessment of Personal 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 PeCS in relation to those of a practicing entrepreneur/employee	The learner demonstrates an understanding of one's Personal Competencies and Skills (PeCS).	The learner recognizes his/her Personal Competencies and Skills (PeCS) and is able to compare these with the PeCS of a practicing entrepreneur/ employee involved in aquaculture.	**LO 1. Recognize Personal Competencies and Skills (PeCS) needed** aquaculture 1.1. Identify and assess one's PeCS: Characteristics, Attributes, Lifestyle, Skills, Traits 1.2. Identify and assess a practitioner's PeCS: Characteristics, Attributes, Lifestyle, Skills, Traits 1.3. Compare self with a practitioner. 1.4. Identify areas for improvement, development and growth	**TLE_PECS7/8-00-1**
ENVIRONMENT AND MARKET (EM)				
1. Key concepts of Environment & Market 2. Products & services available in the market	Learner demonstrates understanding of the environment and market of aquaculture	The learner independently identifies the products/services available, the customers, and the	**LO 1. Recognize and understand the market for aquaculture.** 1.1. Identify the different products/services available in the market	**TLE_EM7/8-00-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODING
3. Concept of differentiation of products & services 4. Concept of Customers and the reasons they buy products & services 5. Competitors in the market		competition within the aquaculture market.	1.2. Enumerate the differences between these products 1.3. Identify who the customers of these products are and the reason these products/services are purchased 1.4. Identify the companies who sell these products/services in the market	
LESSON 1: USE FISHERY TOOLS AND EQUIPMENT (UT)				
1. Fishery tools 2. Safety practices during farm operation 3. Fishery equipment 4. Fishery facilities 5. Preventive maintenance	The learner demonstrates understanding of concepts, underlying theories and principles in the use of tools and equipment in aquaculture.	The learner independently uses tools and equipment in aquaculture according to standard procedure.	**LO 1. Select and use fishery tools** 1.1. Identify appropriate fishery tools according to requirement 1.2. Check for faulty and defective tools in accordance with farm procedures 1.3. Use appropriate tools and equipment	**TLE_AFAQ7/8UT-Ia-1**
			LO 2. Select and operate fishery equipment 2.1. Identify fishery equipment and facilities 2.2. Conduct pre-operation check-up in line with manufacturer's manual 2.3. Follow safety precautions 2.4. Identify and report faults and defects of tools 2.5. Use fishery equipment and facilities according to their functions 2.6. Read instructional manuals on farm tools and equipment	**TLE_AFAQ7/8UT-Ia-b-2**
			LO 3. Perform preventive maintenance 3.1. Follow aquaculture procedures in cleaning tools, equipment and facilities after use 3.2. Perform routine check-up and maintenance 3.3. Store tools and equipment in areas in accordance with farm procedures	**TLE_AFAQ7/8UT-Ic-3**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODING
LESSON NO. 2: PERFORM ESTIMATION AND BASIC CALCULATION (MC)				
1. Problem solving procedures 2. Cost estimates of facilities 3. Calendar of activities 4. Systems of measurement 5. Unit of measurement 6. Conversion of units 7. Fractions and decimals 8. Percentage and ratios 9. Simple record keeping	The learner demonstrates understanding of concepts, underlying theories and principles in performing estimation and basic calculations in aquaculture.	The learner independently performs estimation and basic calculations relative to aquaculture.	**LO 1. Perform estimation** 1.1. Identify job requirements from oral and written communication 1.2. Estimate quantities of materials and resources required to complete a work/task 1.3. Estimate time needed to complete a work/activity 1.4. Make estimate of work materials and resources	**TLE_AFAQ7/8MC-Id-1**
			LO 2. Perform basic calculations 2.1. Check and complete computed number 2.2. Identify basic calculations to be made according to job requirements 2.3. Ascertain systems and units of measurement to be followed 2.4. Follow the appropriate mathematical operations to comply with the job requirements 2.5. Explain how to review and check results obtained in the computation of mathematical problems 2.6. Calculate whole numbers, fractions, percentages and mixed numbers	**TLE_AFAQ7/8MC-Ie-2**
LESSON NO. 3: DRAW THE LAYOUT PLANS FOR PONDS, TANKS PENS AND CAGES (ID)				
1. Pond designs 2. Compartments 3. Gate location 4. Types of dikes 5. Characteristics of water 6. Supply canal 7. Shapes of tanks 8. Life support system for tanks	The learner demonstrates understanding of concepts, underlying theories and principles in drawing layout plans for ponds, tanks, pens, and cages.	The learner draws lay-out plans for ponds, tanks, pens and cages in accordance with established standards.	**LO 1. Draw layout plans for ponds** 1.1. Identify different pond compartments 1.2. Use signs and symbols of plan according to fishpond engineering standards 1.3. Draw layouts of different pond designs according to established procedures	**TLE_AFAQ7/8ID-If-1**
			LO 2. Draw layout plans for tanks 2.1. Identify different life support systems	**TLE_AFAQ7/8ID-Ig-2**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODING
			for tanks 2.2. Use signs and symbols of plan according to fishpond engineering standards 2.3. Draw layouts of different tank designs according to established procedures	
			LO 3. Draw layout plans for pens and cages 3.1. Identify the different life support systems for pens and cages 3.2. Use signs and symbols of plan according to fishpond engineering standards 3.3. Draw layouts of different pens and cages designs according to established procedures	**TLE_AFAQ7/8ID-Ih-3**
LESSON 4: APPLY SAFETY MEASURES IN FARM OPERATIONS (OS)				
1. Safety Measures 2. Apply Safety Measures 3. Safekeeping/Disposal of tools, materials and outfits 4. Personal Protective Equipment	The learner demonstrates understanding of concepts, underlying theories and principles of applying safety measures in aquaculture.	The learner independently observes safety measures in aquaculture.	**LO 1. Apply appropriate safety measures** 1.1. Identify work tasks 1.2. Determine place and time for safety measures 1.3. Prepare appropriate tools, materials and outfits 1.4. Use tools and materials accordingly 1.5. Identify hazards 1.6. Wear outfit accordingly 1.7. Observe shelf life 1.8. Follow emergency procedures	**TLE_AFAQ7/8OS-Ii-1**
			LO 2. Safekeeping/disposal of tools materials and outfit 2.1. Explain how to clean used tools and outfits before storing 2.2. Label unused materials and supplies according to manufacturer's recommendation before storing 2.3. Observe how to dispose waste materials	**TLE_AFAQ7/8OS-Ij-2**

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AGRI – FISHERY - ARTS – AQUACULTURE
(160 hours)

Course Description:
This is a specialization course which leads to an **Aquaculture** National Certificate II (NC II). It covers one core competency that a high school student ought to possess: conducting pre-operations aquaculture activities.

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

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Basic concepts in aquaculture 2. Relevance of the course 3. Career opportunities	The learner demonstrates understanding of basic concepts and underlying theories in aquaculture.	The learner independently demonstrates common competencies in aquaculture as prescribed by TESDA Training Regulations.	1. Explain basic concepts in aquaculture 2. Discuss the relevance of the course 3. Explore on opportunities for Aquaculture as a career or source of extra income	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PECS)				
1. Assessment of Personal Competencies and Skills (PeCS) vis-à-vis a practicing entrepreneur/employee in the 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) and what it takes to become successful in the field.	The learner recognizes his/her Personal Competencies and Skills (PeCS) and is able to compare these with the PeCS of a practicing entrepreneur/employee involved in the Aquaculture.	**LO 1. Develop and Strengthen Personal Competencies and Skills (PeCS) needed** aquaculture 1.1. Identify & Assess one's PeCS: Characteristics, Attributes, Lifestyle, Skills, Traits 1.2. Identify successful entrepreneurs/ employees in the town 1.3. Identify & Assess a practitioner's: Characteristics, Attributes, Lifestyle, Skills, Traits 1.4. Compare self with a practitioner 1.5. Identify areas for improvement, development and growth 1.6. Align, strengthen, develop areas based on the results of the PeCS Assessment	**TLE_PECS9-12-00-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
ENVIRONMENT AND MARKET (EM)				
THE MARKET (The Town) 1. Key concepts of the Market 2. Players in the Market (Competitors) 3. Products and services available in the market	The learner demonstrates understanding of the market of aquaculture in the context of the town.	The learner independently identifies the products/services available and the competitors in the town's aquaculture market.	**LO 1. Recognize and understand the market for aquaculture** 1.1 Identify the players/ competitors within the town 1.2 Identify the different products/services available in the market 1.3 Enumerate the differences between these products/ services	**TLE_EM9-12-00-1**
THE MARKET – CUSTOMER 1. Key concepts in Identifying and Understanding the Consumer 2. Consumer Analysis through: 2.1. Observation 2.2. Interviews 2.3. FGDs (Focused Group Discussions) 2.4. Survey	The learner demonstrates understanding of the customers of aquaculture.	The learner independently identifies the customers within the aquaculture market.	**LO 2. Recognize the customers in the aquaculture market** 2.1. Identify the different customers of the market 2.2. Identify the customers' needs and wants through consumer analysis 2.3. Conduct observation exercises, interviews, Focused Group Discussions (FGD) and a survey	**TLE_EM9-12-00-2**
THE MARKET - GENERATING BUSINESS IDEA 1. Key concepts in Generating Business Ideas 2. Knowledge, skills, passions, and interests 3. New applications 4. Irritants	The learner demonstrates understanding of the techniques of generating business ideas.	The learner independently generates business ideas using the various techniques available.	**LO 3. Create new business ideas using the various techniques and based on the analyses of the market for aquaculture** 4.1. Generate business ideas using knowledge, skills, passions, and interests 4.2. Generate business ideas using new applications (finding new use for existing products/materials) 4.3. Generate business ideas from one's irritants	**TLE_EM9-12-00-3**
THE MARKET - GENERATING BUSINESS IDEA 1. Key concepts in Generating Business Ideas 2. Striking ideas (new concept)	The learner demonstrates understanding of the techniques used in generating business ideas.	The learner independently generates business ideas using the various techniques available.	**LO 4. Create new business ideas using the various techniques and based on the analyses of the market for aquaculture** 4.1. Generate business ideas based on	**TLE_EM9-12-00-4**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
3. Serendipity Walk			striking Ideas 4.2. Generate business ideas using the Serendipity Walk	
QUARTER 1 – CONDUCT PRE-OPERATIONS AQUACULTURE ACTIVITIES **LESSON 1: PREPARATION OF TOOLS AND SIMPLE EQUIPMENT (PT)**				
1. Materials in fishpond/fish tank construction 2. Tools used in fishpond/fish tank construction 3. Types of finishing materials for fishpond/fish tanks 4. Construction materials 5. Inspection of condition of tools	The learner demonstrates understanding of the preparation of construction materials and tools in fishpond/fish tank construction.	The learner independently prepares appropriate materials and tools in fishpond/fish tank construction based on industry standards.	**LO 1. Prepare tools and materials in fishpond/fish tank construction** 1.1. Check and clean tools and equipment 1.2. Check harvesting tools 1.3. Perform simple repairs 1.4. Inspect materials for possible repair	**TLE_AFAQ9-12PT-Ia-j-1**
QUARTER 2 – CHANGING WATER OF AQUACULUTURE FACILITY				
1. Sources of water 2. Quantity 3. Quality 4. Drainage 5. Methods of changing water 6. Types of water 6.1. Freshwater 6.2. Saline water 6.3. Brackish water 6.4. Water exchange			1.5. Determine the volume of water 1.6. Select appropriate method of water exchange 1.7. Carry out water exchange	**TLE_AFAQ9-12PT–IIa-j-1**
QUARTER 3 – MORTALITIES				
1. Mortality 1.1. Monitor and collect mortalities 1.2. How to calculate mortality rate 1.3. Analyze factors leading to mortality 2. Predator 2.1. Types of predator 2.2. How to reduce mortality 2.3. The use of disinfectant			1.8. Determine and analyze mortality 1.9. Check and prevent predators 1.10. Determine the causes of mortality 1.11. Observe the precautionary measures in reducing mortality 1.12. Follow steps in using disinfectants	**TLR_AFAQ9-12PT–IIIa-j-1**
QUARTER 4 – PREPARE AND SECURE AQUACULTURE FACILITIES				

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AGRI – FISHERY - ARTS – AQUACULTURE

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
1. Prepare facilities 2. Pond construction 3. Tank construction 4. Cage and frames 5. Nets 6. Cleaning 7. How to store tools 8. Structures during inclement weather			1.13. Prepare ponds, cages and frames 1.14. Brush and repair cages and frames 1.15. Clean and disinfect tanks 1.16. Install structures during inclement weather 1.17. Store tools and equipment properly	**TLE_AFAQ9-12PT–IVa-j-1**

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AGRI – FISHERY - ARTS – AQUACULTURE
(160 hours)

Course Description:

This is a specialization course which leads to **Aquaculture** National Certificate II (NC II). It covers one core competency that a high school student ought to possess: preparing and maintaining aquaculture facilities. The preliminaries of this specialization course include the following: 1) a discussion on the relevance of the course; 2) explanation of key concepts relative to the course, and 3) exploration of career opportunities.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Basic concepts in aquaculture 2. Relevance of the course 3. Career opportunities	The learner demonstrates understanding of basic concepts and underlying theories in aquaculture.	The learner independently demonstrates common competencies in aquaculture as prescribed by TESDA Training Regulations	1. Explain basic concepts in aquaculture 2. Discuss the relevance of the course 3. Explore on opportunities for Aquaculture as a career or source of extra income	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PECS)				
1. Assessment of Personal Competencies and Skills (PeCS) vis-à-vis a practicing entrepreneur/employee in the 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. Align, strengthen and develop ones PeCS based on the results	The learner demonstrates an understanding of one's Personal Competencies and Skills (PeCS) and what it takes to become successful in the field.	The learner recognizes his/her Personal Competencies and Skills (PeCS) and is able to compare these with the PeCS of a practicing entrepreneur/ employee involved in aquaculture	**LO 1. Develop and strengthen Personal Competencies and Skills (PeCS) needed in aquaculture** 1.1. Identify and assess one's PeCS: Characteristics, Attributes, Lifestyle, Skills, Traits 1.2. Identify successful entrepreneurs/ employees in the province 1.3. Identify and assess a practitioner's PeCS: Characteristics, Attributes, Lifestyle, Skills, Traits 1.4. Compare self with a practitioner 1.5. Identify areas for improvement, development and growth 1.6. Align, strengthen, develop areas based on the results of the PeCS Assessment	**TLE_PECS9-12-00-1**
ENVIRONMENT AND MARKET (EM)				
THE MARKET (The Province) 1. Key concepts of the Market 2. Players in the Market(Competitors) 3. Products & services available in the market	The learner demonstrates understanding of the market of aquaculture in the context of the province.	The learner independently identifies the products/services available and the competitors in the province's aquaculture market.	**LO 1. Recognize and understand the market for aquaculture** 1.1 Identify the players/ competitors within the province 1.2 Identify the different products/services	**TLE_EM9-12-00-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			available in the market 1.3 Enumerate the differences between these products/ services	
THE MARKET – PRODUCT DEVELOPMENT 1. Key concepts in developing a product 2. Finding Value 3. Innovation 4. Unique Selling Proposition (USP)	The learner demonstrates understanding of developing a product in aquaculture.	The learner independently identifies the customers of the aquaculture market.	**LO 2. Develop a product for the aquaculture market** 2.1. Identify what is of "Value" to the customer 2.2. Identify the Customer 2.3. Define and identify what makes a product different 2.4. Enumerate and apply creativity and innovation techniques in order to develop a product that stands out. 2.5. Identify the unique selling proposition (USP) of the product	**TLE_EM9-12-00-2**
THE MARKET - SELECTING BUSINESS IDEA 1. Key concepts in Selecting a Business Idea 2. Criteria 3. Techniques	The learner demonstrates understanding of the techniques used in selecting business ideas.	The learner independently selects a viable business idea.	**LO 3. Select a business idea for the aquaculture market based on the criteria and techniques provided** 3.1. Identify potential business ideas to select from 3.2. Enumerate the various criteria and steps to selecting a business idea 3.3. Apply the criteria/steps in order to select a viable business idea. 3.4. Identify a business idea based on the criteria/steps provided	**TLE_EM9-12-00-3**
THE MARKET – BRANDING 1. Key concepts of Branding	The learner demonstrates an understanding of branding and develops a brand for their business idea.	The learner independently generates a brand for their business idea.	**LO 4. Develop a brand for the product** 4.1. Identify the benefits of having a good brand 4.2. Enumerate recognizable brands in the town/province 4.3. Enumerate the criteria for developing a brand 4.4. Generate a brand that is clear and follows the techniques of generating a	**TLE_EM9-12-00-4**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			brand	
QUARTER 1 **LESSON 1: PREPARE AND MAINTAIN AQUACULTURE FACILITIES (PM)**				
1. Classification of tools and equipment: 1.1. Functional 1.2. Non functional 2. Site Evaluation 3. Soil analysis 4. Water retention/water holding capacity 5. Topography 6. Natural food 7. Suitable species for tanks, ponds, pens and cages 8. Area of pond/tanks 9. Water analysis	The learner demonstrates understanding of the underlying concepts and principles in the maintenance of aquaculture facilities.	The learner independently performs proper maintenance of aquaculture facilities based on industry standards.	**LO 1. Check the condition of site** 1.1. Sample and analyze the soil for water holding capacity 1.2. Determine the volume of water resources 1.3. Assess the quality of water 1.4. Measure the topography of the site 1.5. Determine the sources of natural food 1.6. Determine the suitable species to culture 1.7. Read the tidal level 1.8. Determine the area of the tank and the budget for its construction 1.9. Analyze water	**TLE_AFAQ9-12PM-Ia-j-1**
QUARTER 2				
Layout of ponds, tanks, pens and cages 1. Nets and mesh size 2. Material cost 3. Species appropriate for tanks, ponds, pens and cages 4. Budgetary cost of ponds, tanks, pens, and cages 5. Frames 6. Other important facilities			**Ponds** 1.10. Determine the area, depth and the number and size of compartments 1.11. Position the markers as guides 1.12. Determine the materials used 1.13. Determine the number of pumps and their location 1.14. Plan for the other important facilities	**TLE_AFAQ9-12PM-IIa-j-1**
QUARTER 3				
1. Area 2. Depth 3. Number and size of compartments 4. Markers 5. Number of pumps 6. Location of pumps 7. Materials used 8. Other facilities			**Tanks** 1.15. Determine the area, depth and the number and size of compartments 1.16. Position the markers as guides 1.17. Determine the materials used 1.18. Determine the number of pumps and their location 1.19. Plan for the other important facilities	**TLE_AFAQ9-12PM-IIIa-j-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			Pens 1.20. Determine the area, depth and the number and size of compartments 1.21. Determine the materials used **Cages** 1.22. Determine the area, depth, and the number and size of compartments 1.23. Determine the materials used 1.24. Determine the mesh size	
QUARTER 4				
1. Mobile resources and carry-out installation of facilities 2. Major support 3. Life support 4. Position of the equipment 5. Netting materials 6. Floats and sinkers 7. Mooring system 8. Bottom of the net			**Ponds** 1.25. Prepare construction resources 1.26. Install major and other support facilities 1.27. Install life support facilities **Tanks** 1.28. Install life support facilities 1.29. Lay out facilities **Pens** 1.30. Fabricate netting materials, floats and sinkers 1.31. Inspect and set-up nets **Cages** 1.32. Check bottom of net 1.33. Check mooring system 1.34. Set-up net	**TLE_AFAQ9-12-IVa-j-1**

GLOSSARY	
Dikes	An embankment of earth and rock built to prevent floods or to hold irrigation water in for agricultural purposes
Brackish water	Briny water is water that has more salinity than fresh water, but not as much as seawater. It may result from mixing of seawater with fresh water, as in estuaries, or it may occur in brackish fossil aquifers.
Compartments	a separate section or part of a structure or container; One of the parts or spaces into which an area is subdivided.
Culture	The cultivation of plants, especially by scientific methods designed to improve stock or to produce new ones
Drainage	Ss the natural or artificial removal of surface and sub-surface water from an area; (2) The action or a method of draining.
Frames	To conceive or design; To build by putting together the structural parts of; construct
Freshwater	Is naturally occurring water on the Earth's surface in ice sheets, ice caps, glaciers, icebergs, bogs, ponds, lakes, rivers and streams, and underground as groundwater in aquifer sand underground streams. Fresh water is generally characterized by having low concentrations of dissolved salts and other total dissolved solids.
Inclement weather	unpleasant weather which is stormy or rainy
Life support system	Is any natural or human-engineered (constructed or made) system that furthers the life of the biosphere in a sustainable fashion. 2 an artificial or natural system that provides all or some of the items (as oxygen, food, water, control of temperature and pressure, disposition of carbon dioxide and body wastes) necessary for maintaining life or health
mesh size	Is a term that refers to the extensiveness of apertures within a mesh network used to sort or standardize granular material. It may also be used to sort cereals in a factory. The larger the aperture the larger the mesh size; An open fabric of string or rope or wire woven together at regular intervals
Mooring system	A mooring system is made up of a mooring line, anchor and connectors, and is used for station keeping of a ship or floating platform in all water depths. A mooring line connects an anchor on the seafloor to a floating structure.
Mortality	An organism that lives by preying on other organisms; an animal that hunts and seizes other animals for food.
Natural food	The term is assumed to imply foods that are minimally processed and do not contain manufactured ingredients, mostly available in the environment.
Netting materials	anything that are utilized in making fish nets
Saline water	Is a general term for water that contains a significant concentration of dissolved salts. The salt concentration is usually expressed in parts per thousand or parts per million
Sinkers	One that sinks, as a weight used for sinking fishing lines or nets.
Species	Is one of the basic units of biological classification and a taxonomic rank. A species is often defined as a group of organisms capable of interbreeding and producing fertile offspring; A group of animals or plants that are similar and can produce young animals or plants : a group of related animals or plants that is smaller than a genus

GLOSSARY	
Supply canal	An artificial waterway for navigation or for draining or irrigating land; a long narrow place that is filled with water and was created by people so that boats could pass through it or to supply fields, crops, etc., with water
tidal level	An exceptionally large ocean wave, especially one caused by an underwater earthquake or volcanic eruption; An unusual, often destructive rise of water along the seashore, as from a storm or a combination of wind and high tide.
Topography	The arrangement of the natural and artificial physical features of an area; detailed, precise description of a place or region; graphic representation of the surface features of a place or region on a map, indicating their relative positions and elevations.
Water exchange	The volume and rate of water exchange between air and a body of water in a specific location, or between several bodies of water, controlled by such factors as tides, winds, river discharge, and currents.
Water retention/water holding	The capacity of anything to retain or hold water or one that does not permit water to percolate, seep or escape

K to12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI – FISHERY - ARTS – AQUACULTURE
CODE BOOK LEGEND

Sample: TLE_AFAQ9-12UT-Ia-j-1

LEGEND		SAMPLE	
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_Agri-Fishery Aquaculture	**TLE_AFAQ 9-12**
	Grade Level	Grade 9/10/11/12	
Uppercase Letter/s	Domain/Content/ Component/ Topic	**Preparation of tools and simple equipment**	**UT**
			-
Roman Numeral **Zero if no specific quarter*	Quarter	First Quarter	**I**
Lowercase Letter/s **Put a hyphen (-) in between letters to indicate more than a specific week*	Week	Week One to Ten	**a-j**
			-
Arabic Number	Competency	Prepare tools and materials in fishpond/fish tank construction	**1**

DOMAIN/ COMPONENT	CODE
Personal Entrepreneurial Skills	PECS
Environment and Marketing	EM
Use and Maintain Tools and Equipment	UT
Perform Estimation and Basic Calculation	MC
Draw the Layout Plans for Ponds, Tanks, Pens and Cages	ID
Apply Safety Measures in Operations	OS
Prepare and Maintain Aquaculture Facilities	PM
Preparation of Tools and Simple Equipment	PT
Prepare and Maintain Aquaculture Facilities	PM

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.

K to12 BASIC EDUCATION CURRICULUM
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AGRI – FISHERY - ARTS – AQUACULTURE

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)** 4 semesters	
2					
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					
8					***Artificial Insemination: Ruminants (NC II)** 2 sems
9					***Slaughtering Operation (NC II)** 2 sems
10		**Horticulture (NC II)**			8 semesters
11		**Food (Fish) Processing (NC II)**			8 semesters
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 I)** 2 sems

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