K to12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL- TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK
AGRI-FISHERY ARTS – AQUACULTURE (FISH OR SHRIMP GROW OUT OPERATION)

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	

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AGRI-FISHERY ARTS – AQUACULTURE (FISH OR SHRIMP GROW OUT OPERATION)

		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 (FISH OR SHRIMP GROW OUT OPERATION)
(160 hours)

Course Description:

Prerequisite: Aquaculture

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 to **PERFORM FISH OR SHRIMP GROW-OUT OPERATIONS**. The preliminaries of this specialization 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	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 in the TESDA Training Regulation.	1. Explain basic concepts in aquaculture 2. Discuss the relevance of the course 3. Specialize 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 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 Aquaculture.	The learner independently creates a plan of action that strengthens/ further develops one's PECs in Aquaculture.	**LO 1. Develop and strengthen personal competencies and skills (PECs) needed in Aquaculture** 1. Identify areas for improvement, development and growth 2. Align one's PECs according to his/her business/career choice 3. Create a plan of action that ensures success of his/her business/career choice	**TLE_ PECS9-12-00-1**
ENVIRONMENT AND MARKET (EM)				
1. Product Development 2. Key concepts of developing a product 3. Finding Value 4. Innovation 4.1. Unique Selling Proposition (USP)	The learner demonstrates understanding of environment and market in Aquaculture in one's region.	The learner independently creates a business vicinity map reflective of potential Aquaculture market within the region.	**LO 1. Develop a product/ service in Aquaculture** 1.1. Identify what is of "Value" to the customer 1.2. Identify the customer to sell to 1.3. Explain what makes a product unique and competitive 1.4. Apply creativity and Innovative techniques	**TLE_ EM9-12-00-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			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: 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_EM9-12-00-2**
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**
QUARTER 1 : PREPARE GROW-OUT FACILITIES (GF) *(Note: Research components should be included in all activities)*				
1. Procedures in pond drying 2. Steps in applying predator control 3. Soil Acidity 4. Identifying pH, lime and liming 5. Fertilizers and Fertilization 6. Principles and procedures in installing pens and cages 7. Procedures in preparing tanks for stocking	The learner demonstrates understanding on the underlying concepts and principles preparing grow-out facilities based on industry standards.	The learner independently performs proper preparation and maintenance of fish/shrimp nurseries based on industry standards.	**LO 1. Grow-Out Facilities** 1.1. Ponds 1.1.1. Dry pond 1.1.2. Apply predator control 1.1.3. Analyze soil pH 1.1.4. Apply lime to correct soil acidity 1.1.5. Compute fertilizer requirement 1.1.6. Apply fertilizer to enhance growth of natural food 1.2. Pens and Cages 1.2.1. Install or set-up frames 1.2.2. Install fabricated net into cages to	**TLE_AFGOO9-12GF-Ia-j-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			the cage frame 1.3. Tanks 1.3.1. Tanks are cleaned, dried and disinfected	
QUARTER 2 : STOCKING OF FINGERLINGS AND STOCK SAMPLING (FS)				
1. Procedures and importance of acclimatization 2. Stocking Rate and Stocking Density 3. Classification of suitable species 4. Process of assessing fingerling quality 5. Fish stocking (Time and Requirements) 6. Basic factors in maintaining growth of natural foods 7. Biomass and ABW 8. Importance and procedures of stock sampling	The learner demonstrates understanding on the underlying concepts and principles in stocking of fingerlings and stock sampling.	The learner independently performs proper stocking of fingerlings and stock sampling based on industry standards.	**LO 1. Stock Fingerlings** 1.1. Acclimatize fish/crustacean fingerlings 1.2. Determine the stocking density with due consideration on the pond carrying capacity 1.3. Classify suitable species of fish/shrimp	**TLE_AFGOO9-12FS-IIa-e-1**
			LO 2. Stock Sampling 2.1. Assess fingerling quality 2.2. Release fingerlings as scheduled or at appropriate time of the day 2.3. Maintain growth of natural food 2.4. Weigh stock samples for ABW and Biomass determination 2.5. Undertake regular stock sampling	**TLE_AFGOO9-12FS-IIf-j-2**
QUARTER 3 : PERFORM FEEDING OPERATIONS AND MAINTAIN GOOD WATER QUALITY				
1. Factors to consider in selecting feeds 2. Principles of feed sampling and analysis 3. Accurate way of computing daily feed ration 4. Feed formulation 5. Importance of keeping records of feeds given 6. Types and operations of measuring instruments in monitoring water quality 7. Process of maintaining	The learner demonstrates understanding on the underlying concepts and principles in performing feeding operations and in maintaining good water quality.	The learner independently performs feeding operations and maintains good water quality based on industry standards.	**LO 1. Perform Feeding Operations** 1.1. Select feeds based on quality 1.2. Sample and analyze feeds periodically 1.3. Compute Average Body Weight (ABW), Biomass, Daily Feed Ration (DFR) and Feed Conversion Ratio (FCR) 1.4. Formulate feeds using locally available materials 1.5. Record feed consumption	**TLE_AFGOO9-12FS-IIIa-e-1**
			LO 2. Maintain Good Water Quality 2.1 Monitor water quality using appropriate measuring instruments according to the	**TLE_AFGOO9-12FS-IIIf-j-2**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
optimum water quality by pond freshening			Standard Methods In The Analysis Of Water And Wastewater 2.2 Maintain optimum water quality by pond freshening and bio-manipulation	
QUARTER 4 : PERFORM COMMON DISEASE DIAGNOSIS AND TREATMENT / HARVEST AND POST-HARVEST HANDLING (DT)				
1. Identifying diseases through physical appearance and behavioral patterns of fishes 2. Basic steps in sampling and diagnosing infected fish, and the recommended treatment 3. Important considerations in preventing/safeguarding the stock against occurrences of viral, bacterial, fungal and parasitic diseases 4. Proper use/operation of seines in harvesting 5. Process of total harvesting of stock in cages 6. Important considerations in packing and transporting harvested fishes. 7. Financial Analysis 8. Record Keeping	The learner demonstrates understanding on the underlying concepts and principles in performing common disease diagnosis and treatment; and harvest and post-harvest handling.	The learner independently performs common disease diagnosis and treatment; and harvest and post-harvest handling based on industry standards.	**LO 1. Perform Common Disease Diagnosis and Treatment** 1.1. Observe and monitor disease through physical appearance and behavioral patterns of the stock 1.2. Sample and diagnose Infected fish 1.3. Identify and implement recommended treatment 1.4. Prevent/safeguard the stock against occurrences of viral, bacterial, fungal and parasitic diseases	**TLE_AFGOO9-12DT-IVa-f-1**
			LO 2. Harvest and Post-Harvest Handling 2.1. Schedule harvest and market of products 2.2. Use seine in pond and cages to harvest the stock 2.3. Lift the cages to collect the stock 2.4. Pack and transport harvested fishes 2.5. Prepare cost and return analysis of the project 2.6. Keep financial records	**TLE_AFGOO9-12DT-IVg-j-2**

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Code Book Legend

Sample: TLE_AFGOO9-12-IVa-e-1

LEGEND		SAMPLE	
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_Agri-Fishery Animal Production	**TLE_AF 9-12**
	Grade Level	Grade 9/10/11/12	
Uppercase Letter/s	Domain/Content/ Component/ Topic	Fish or Shrimp Grow-Out Operation	**GOO**
			-
Roman Numeral **Zero if no specific quarter*	Quarter	Fourth Quarter	**IV**
Lowercase Letter/s **Put a hyphen (-) in between letters to indicate more than a specific week*	Week	Week One to Five	**a-e**
			-
Arabic Number	Competency	Perform Common Disease Diagnosis and Treatment	**1**

DOMAIN/ COMPONENT	CODE
Personal Entrepreneurial Skills	PECS
Environment and Marketing	EM
Fish or Shrimp Grow-Out Operation	GOO
Prepare Grow-Out Facilities	GF
Stocking of Fingerlings and Stock Sampling	FS
Perform Feeding Operations and Maintain Good Water Quality	FM
Perform Common Disease Diagnosis and Treatment / Harvest and Post-Harvest Handling	DT

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				*Landscape Installation and Maintenance (NC II) 4 semesters	
2					
3				*Pest Management (NC II) 4 semesters	
4		Crop Production (NC I) 4 semesters		*Rice Machinery Operation (NC II) 4 semesters	
5				*Organic Agriculture (NC II) 4 semesters	
6					*Artificial Insemination: Swine (NC II) 2 sems
7					
8	EXPLORATORY	Animal Production (NC II) 6 semesters			*Artificial Insemination: Ruminants (NC II) 2 sems
9					*Slaughtering Operation 2 sems
10		Horticulture (NC II) 8 semesters			
11	4 semesters	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.