K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI-FISHERY ARTS – HORTICULTURE NC III
(640 hours)

These are the specializations and their pre-requisites. These lists should be used as reference for curriculum maps.

AGRI-FISHERY ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Agricultural Crops Production (NC I)	320 hours	
2.	Agricultural Crops Production (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
3.	Agricultural Crops Production (NC III)	640 hours	Agricultural Crops Production (NC II)
4.	Animal Health Care Management (NC III)	320 hours	Animal Production (Poultry-Chicken) (NC II) or Animal Production (Ruminants) (NC II) or Animal Production (Swine) (NC II)
5.	Animal Production (Poultry-Chicken) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
6.	Animal Production (Large Ruminants) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
7.	Animal Production (Swine) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
8.	Aquaculture (NC II)	640 hours	
9.	Artificial Insemination (Large Ruminants) (NC II)	160 hours	Animal Production (Large Ruminants) (NC II)
10.	Artificial Insemination (Swine) (NC II)	160 hours	Animal Production (Swine) (NC II)
11.	Fish Capture (NC II)	640 hours	
12.	Fishing Gear Repair and Maintenance (NC III)	320 hours	
13.	Fish-Products Packaging (NC II)	320 hours	
14.	Fish Wharf Operation (NC I)	160 hours	
15.	Food Processing (NC II)	640 hours	
16.	Horticulture (NC III)	640 hours	Agricultural Crops Production (NC II)
17.	Landscape Installation and Maintenance (NC II)	320 hours	
18.	Organic Agriculture (NC II)	320 hours	
19.	Pest Management (NC II)	320 hours	
20.	Rice Machinery Operations (NC II)	320 hours	
21.	Rubber Processing (NC II)	320 hours	
22.	Rubber Production (NC II)	320 hours	
23.	Slaughtering Operations (Hog/Swine/Pig) (NC II)	160 hours	

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HOME ECONOMICS

	Specialization	Number of Hours	Pre-requisite
1.	Attractions and Theme Parks Operations with Ecotourism (NC II)	160 hours	
2.	Barbering (NC II)	320 hours	
3.	Bartending (NC II)	320 hours	
4.	Beauty/Nail Care (NC II)	160 hours	
5.	Bread and Pastry Production (NC II)	160 hours	
6.	Caregiving (NC II)	640 hours	
7.	Commercial Cooking (NC III)	320 hours	Cookery (NC II)
8.	Cookery (NC II)	320 hours	
9.	Dressmaking (NC II)	320 hours	
10.	Events Management Services (NC III)	320 hours	
11.	Fashion Design (Apparel) (NC III)	640 hours	Dressmaking (NC II) or Tailoring (NC II)
12.	Food and Beverage Services (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	160 hours	
13.	Front Office Services (NC II)	160 hours	
14.	Hairdressing (NC II)	320 hours	
15.	Hairdressing (NC III)	640 hours	Hairdressing (NC II)
16.	Handicraft (Basketry, Macrame) (Non-NC)	160 hours	
17.	Handicraft (Fashion Accessories, Paper Craft) (Non-NC)	160 hours	
18.	Handicraft (Needlecraft) (Non-NC)	160 hours	
19.	Handicraft (Woodcraft, Leathercraft) (Non-NC)	160 hours	
20.	Housekeeping (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	160 hours	
21.	Local Guiding Services (NC II)	160 hours	
22.	Tailoring (NC II)	320 hours	
23.	Tourism Promotion Services (NC II)	160 hours	
24.	Travel Services (NC II)	160 hours	
25.	Wellness Massage (NC II)	160 hours	

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AGRI-FISHERY ARTS – HORTICULTURE NC III
(640 hours)

INDUSTRIAL ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Automotive Servicing (NC I) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
2.	Automotive Servicing (NC II)	640 hours	Automotive Servicing (NC I)
3.	Carpentry (NC II)	640 hours	
4.	Carpentry (NC III)	320 hours	Carpentry (NC II)
5.	Construction Painting (NC II)	160 hours	
6.	Domestic Refrigeration and Air-conditioning (DOMRAC) Servicing (NC II)	640 hours	
7.	Driving (NC II)	160 hours	
8.	Electrical Installation and Maintenance (NC II)	640 hours	
9.	Electric Power Distribution Line Construction (NC II)	320 hours	Electrical Installation and Maintenance (NC II)
10.	Electronic Products Assembly and Servicing (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
11.	Furniture Making (Finishing) (NC II)	640 hours	
12.	Instrumentation and Control Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
13.	Gas Metal Arc Welding (GMAW) (NC II)	320 hours	Shielded Metal Arc Welding (SMAW) (NC II)
14.	Gas Tungsten Arc Welding (GTAW) (NC II)	320 hours	Shielded Metal Arc Welding (GMAW) (NC II)
15.	Machining (NC I)	640 hours	
16.	Machining (NC II)	640 hours	Machining (NC I)
17.	Masonry (NC II)	320 hours	
18.	Mechatronics Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
19.	Motorcycle/Small Engine Servicing (NC II)	320 hours	
20.	Plumbing (NC I)	320 hours	
21.	Plumbing (NC II)	320 hours	Plumbing (NC I)
22.	Refrigeration and Air-Conditioning (Packaged Air-Conditioning Unit [PACU]/Commercial Refrigeration Equipment [CRE]) Servicing (NC III)	640 hours	Domestic Refrigeration and Air-conditioning (DOMRAC) Servicing (NC II)
23.	Shielded Metal Arc Welding (NC I)	320 hours	
24.	Shielded Metal Arc Welding (NC II)	320 hours	Shielded Metal Arc Welding (NC I)
25.	Tile Setting (NC II)	320 hours	
26.	Transmission Line Installation and Maintenance (NC II)	640 hours	Electrical Installation and Maintenance (NC II)

INFORMATION, COMMUNICATIONS AND TECHNOLOGY (ICT)

	Specialization	Number of Hours	Pre-requisite
1.	Animation (NC II)	320 hours	
2.	Broadband Installation (Fixed Wireless Systems) (NC II)	160 hours	Computer Systems Servicing (NC II)
3.	Computer Programming (.Net Technology) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
4.	Computer Programming (Java) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
5.	Computer Programming (Oracle Database) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
6.	Computer Systems Servicing (NC II) *updated based on TESDA Training Regulations published December 28, 2007*	640 hours	
7.	Contact Center Services (NC II)	320 hours	
8.	Illustration (NC II)	320 hours	
9.	Medical Transcription (NC II)	320 hours	
10.	Technical Drafting (NC II)	320 hours	
11.	Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II)	320 hours	Computer Systems Servicing (NC II)
12.	Telecom OSP Installation (Fiber Optic Cable) (NC II)	160 hours	Computer Systems Servicing (NC II)

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AGRI-FISHERY ARTS – HORTICULTURE NC III
(640 hours)

Prerequisite: Agricultural Crops Production NC II

Course Description:

This is a specialization which leads to Horticulture National Certificate Level III (NC III). It covers basic, common, and core competencies for third level certification, such as: 1) leading workplace communication, 2) leading small team, 3)developing and practicing negotiation skills, 4) solving problems related to work activities, 5) using mathematical concepts and techniques, and 6) using relevant technologies for basic competencies; 7) applying safety measures in farm operations, 8) using farm tools and equipment, and 9) performing estimation and basic calculation for common competencies; 10) preparing land for horticultural crop production,11) implementing a post-harvest program, 12) implementing a plant nutrition program, 13) controlling weeds and 14) preparing and applying chemicals for core competencies (general). Under the core competencies in horticulture, it includes: 15) establishing horticultural crops, 16) coordinating horticultural maintenance program, 17) coordinating horticultural harvesting, 18) undertaking field budding and grafting, and 19) undertaking propagation activities.

This CG also includes elective competencies which the school can choose 3 lessons among the given 9 lessons. These are the following: 1. Following site quarantine procedures 2. collecting samples for a rural production or horticultural monitoring program 3. handling bulk materials in storage area 4. preparing grain storage5. complying with industry quality assurance requirements 6. maintainng and monitoring environmental work practices 7.keeping records for farm business 8. performing specialized machinery maintenance 9. installing irrigation systems.

The preliminaries of this course include the following: 1) 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. Concepts and competencies in performing horticultural farm operations 2. Career Opportunities in Horticulture Farm Operations	The learner demonstrates understanding of one's Personal Competencies (PECS) across horticultural products and services.	The learner recognizes his/her Personal Competencies (PECS) across horticultural products and services and prepares an activity plan that aligns with that of a practitioner/entrepreneur in Horticulture.	1. Explain the different factors to be considered in setting up a business. 2. Assess one's PEC's, such as, characteristics, lifestyle features , and skills. 3. Assess practitioner's entrepreneurial competencies, such as, characteristics, attributes, lifestyle, skills, and traits.	
DEVELOPING PERSONAL ENTREPRENEURIAL COMPETENCIES AND SKILLS (PECS)				
1. Nature of entrepreneurialactivities 2. Assessment of Personal Competencies and Skills (PECS) vis-à-vis a practicing entrepreneur/ employee in locality/town	The learner demonstrates understanding of one's Personal Competencies and Skills (PECS) in Horticulture.	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	**LO 1. Know the nature of an entrepreneurial activity in relation to Personal Entrepreneurial Competencies and Skills (PECS) needed in Horticulture.** 1.1 Know the different factors considered in setting up businesses.	**TLE_ PECS9-12-00-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
2.1 Characteristics 2.2 Lifestyle 2.3 Skills 3. Analysis of PECS in relation to a practitioner 4. Aligning, strengthening and developing ones PECS based on the results		Horticulture.	1.2 Identify the characteristics, lifestyle, skills of successful entrepreneurs. 1.3 Assess one's PECS: characteristics, attributes, lifestyle, skills, and traits. 1.4 Assess practitioner's: characteristics, attributes, lifestyle, skills, and traits. 1.5 Compare one's PECS with that of a practitioner /entrepreneur. 1.6 Align one's PECS with that of a practitioner/entrepreneur.	
UNDERSTANDING THE ENVIRONMENT AND MARKET OF BUSINESSES (EM)				
Market (Town) 1. Key concepts of Market 2. Players in the Market (Competitors) 3. Products & services available in the market	The learner demonstrates understanding of environment and market in Horticulture in one's town/municipality.	The learner independently creates a business vicinity map reflective of potential Horticulture market within the locality/town.	**LO 1. Recognize and understand the influence of the market and environment in businesses.** 1.1 Market characteristics 1.2 Forms of businesses across industries 1.3 Needs and demands through environmental scanning 1.4 4M's of production 1.5 Start-up capital, site selection, hiring, registering a business, and record keeping 1.6 SWOT 1.7 Business Plan	**TLE_ EM9-12-00-1**
BASIC COMPETENCIES				
LESSON 1: LEADING WORK PLACE COMMUNICATION (LWC)				
• Method of communication • Communication skills • Communication tools • Questioning techniques	The learner demonstrates an understanding of the underlying theories in leading workplace communication.	The learner independently performs leading work place communication based on TESDA Training Regulations.	**LO 1. Lead workplace communication.** 1.1 Select appropriate communication methods. 1.2 Communicate multiple operations involving several topics /areas. 1.3 Use questions to generate extra information. 1.4 Identify correct sources of information	**TLE_AFAHCT9-12LWC-Ia-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			1.5 Select Information and sequence correctly when required. 1.6 Maintain verbal and written reporting in both familiar and unfamiliar situations.	
• Method/techniques of discussion • Lead discussion techniques • Approaches in soliciting responses			**LO 2. Lead workplace discussion.** 2.1 Provide responses to workplace issues. 2.2 Discuss constructive contributions to workplace, such as: issues on production, quality and safety. 2.3 Communicate goals and aims of actions taken in the workplace.	**TLE_AFAHCT9-12LWC-Ia-2**
• Identitification of problems and issues • Organization of information on problems and issues • Relate problems and issues • Communication barriers affecting workplace discussions.			**LO 3. Identify and communicate issues arising in the workplace.** 3.1 Identifyissues and problems as they arise. 3.2 Organize information coherently regarding problems and issues to ensure clear and effective communication. 3.3 Initiate dialogue with appropriate personnel. 3.4 Address communication problems and issues as they arise.	**TLE_AFAHCT9-12LWC-Ia-3**
LESSON 2: LEADING SMALL TEAM (LST)				
• Communication skills required to lead small team • Skills and techniques in promoting team building • Negotiate skills • Up to date dissemination of instruction and requirements to members • Art of listening and treating individual team members appropriately	The learner demonstrates an understanding of the underlying theories in leading a small team.	The learner independently lead a small team based on TESDA Training Regulations.	**LO1. Provide team leadership.** 1.1 Identify work requirements and prescribe these to members. 1.2 Disseminate reasons for instructions and requirements properly to team members. 1.3 Recognize and discuss team members' questions, problems, concerns and addressed these accordingly.	**TLE_AFAHCT9-12LST-Ia-4**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Duties and responsibilities of each team member • Skills in identifying individual skills ,knowledge and attitude as basis for allocating responsibilities • Knowledge in identifying each team member duties and responsibilities			**LO 2. Assign responsibilities among members.** 2.1 Allocate duties and responsibilities in accordance to the skills, knowledge and attitudes of every team member. 2.2 Allocate duties based on the individual preference, domestic and personal considerations. 2.3 Identify and define properly the duties and responsibilities of each member.	**TLE_AFAHCT9-12LST-Ib-5**
• Knowledge and skills in setting individual performance target/expectation • Employee policies and procedures • Define performance expectations criteria			**LO 3. Set performance expectation for team members.** 3.1 Establish performance expectations based on client needs and according to assigned requirements. 3.2 Perform expectations based on individual team member's duties and responsibilities. 3.3 Discuss and disseminate performance expectations of individual member.	**TLE_AFAHCT9-12LST-Ib-6**
• Knowledge and skills in monitoring team member's performance • Monitor team operation to ensure compliance to client needs and satisfaction • Methods of monitoring performance • Informal/formal counseling skills			**LO 4.Supervise team performance.** 4.1 Define monitoring team member's performance based on set performance criteria. 4.2 Provide team members with feedback, positive support and advice on strategies to overcome any difficulties. 4.3 Inform team members of any changes in the priority to allocated assignment or task. 4.4 Provide communication follow-up on all issues affecting the team.	**TLE_AFAHCT9-12LST-Ib-7**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 3: DEVELOPING AND PRACTICING NEGOTIATION SKILLS (PNS)				
• Background information on other parties to the negotiation • Differences between content and process. • Identify bargaining information • Apply strategies to manage process • Strategies to manage conflict • Steps in negotiating process	The learner demonstrates an understanding of the underlying theories in developing and practicing negotiation skills.		**LO 1. Plan negotiations.** 1.1 Identify Information in preparation for negotiation. 1.2 Include background information in the preparation for negotiation plan. 1.3 Identify information on creating non-verbal environments for positivenegotiations. 1.4 Include information on creating non-verbal environment for positive negotiation plan. 1.5 Identify information on the different questioning techniques included in the plan.	**TLE_AFAHCT9-12PNS-Ib-c-8**
• Decision making and conflict resolution strategies/ procedures • Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation • Differences between content and process			**LO 2. Participate in negotiations.** 2.1 Create an agreement for the criteria for successful outcome for all parties. 2.2 Consider desired outcome of all parties. 2.3 Use appropriate language throughout the negotiation. 2.4 Document all issues and processes agreed upon by all parties. 2.5 Discuss possible solutions and assess their viability. 2.6 Confirm and record areas for agreement. 2.7 Follow-up action as agreed upon by all parties	**TLE_AFAHCT9-12PNS-Ic-9**
LESSON 4: SOLVING PROBLEMS RELATED TO WORK ACTIVITIES (PRW)				
• Observation, investigation and analytical techniques • Brainstorming	The learner demonstrates an understanding of the underlying theories in	The learner independently performs solving problems related to work activities.	**LO 1. Explain the analytical techniques.** 1.1 Explain the importance and application of analytical techniques.	**TLE_AFAHCT9-12PRW-Ic-10**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Cause and effect diagrams • PARETO analysis • SWOT analysis • Gantt chart • PERT CPM and Graph • SCATTERGRAMS	solving problems related to work activities.		1.2 Define analytical techniques, such as: brainstorming, cause and effects diagrams, PARETO analysis, SWOT analysis, Gantt chart, PERT CPM and graphs, and scatter grams.	
• Normal operating parameters and product quality • Identification and clarification of the nature of problems • Application of analytical techniques			**LO 2. Identify the problem.** 2.1 Identify variances from normal operating parameters and product quality. 2.2 Define extent, cause, and nature of the problems on observation, investigation and analytical techniques. 2.3 State problems clearly. 2.4 Specify the problems.	**TLE_AFAHCT9-12PRW-Id-11**
• Non-routine process and quality problems • Team work and work allocation problem • Safety and emergency situation and incidents.			**LO 3. Determine the possible cause/s of the problem.** 3.1 Identify possible cause/s of problems based on experience and the use of problem solving tools/analytical techniques. 3.2 Develop statement on the possible causes of problems. 3.3 Explain fundamental causes of the problem.	**TLE_AFAHCT9-12PRW-Id-12**
LESSON 5: USING MATHEMATICAL CONCEPTS AND TECHNIQUES (MCT)				
• Four fundamental operations • Steps in solving a problem • Standard formulas • Conversion • Measurement	The learner demonstrates an understanding of the underlying theories in using mathematical concepts and techniques.	The learner independently performs using mathematical concepts and techniques.	**LO 1. Identify mathematical tools and techniques to solve problems.** 1.1 Identify problem areas based on given condition. 1.2 Select mathematical techniques based on the given problem.	**TLE_AFAHCT9-12MCT-Id-13**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Problem-based questions • Estimation • Use of mathematical tools and sandard formulas • Mathematical techniques			**LO 2. Apply mathematical procedure/solution.** 2.1 Apply mathematical techniques based on the problem identified. 2.2 Perform mathematical computations to the level of accuracy required for the problem. 2.3 Determine the results of mathematical computation based on job requirements. 2.4 Verify the results of mathematical computation based on job requirements.	**TLE_AFHCT9-12MCT-Id-14**
• Four fundamental operations • Steps in solving a problem • Standard formulas • Conversion • Measurement			**LO 3. Analyze results.** 3.1 Review results of application based on expected and required specifications and outcome. 3.2 Apply appropriate action in case of error on business viability.	**TLE_AFAHCT9-12MCT-Ie-15**
LESSON 6: USING RELEVANT TECHNOLOGIES (URT)				
• Machineries/equipment and their application • Software/programs	The learner demonstrates an understanding of the underlying theories in using relevant technologies.	The learner independently performs using relevant technologies.	**LO 1. Study/select appropriate technology.** 1.1 Study appropriate technology based on work requirements. 1.2 Identify appropriate technology based on work requirements. 1.3 Select appropriate technology based on work requirements.	**TLE_AFAHCT9-12URT-Ie-16**
• Office technology • Industrial technology • System technology • Information technology • Training technology • Different software/hardware • 5S (proper housekeeping)			**LO 2. Apply relevant technology.** 2.1 Use relevant technology in carrying out functions functionbased on work requirements. 2.2 Use applicable software and hardware as per job requirement. 2.3 Observe management concepts as per established industry practices.	**TLE_AFAHCT9-12URT-Ie-17**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Corrective and preventive maintenance • Upgrade of technology • Communication skills • Organizational set-up/work flow			**LO 3. Maintain/enhance relevant technology.** 3.1 Apply maintenance of technology in accordance with the industry standard operating procedures, manufacturer's operating guidelines and occupational health and safety procedures. 3.2 Maintain updating of technology through continuing education or training in accordance with job requirements. 3.3 Report immediately appropriate action for technology failure/ defect to the concerned/ responsible person or section.	**TLE_AFAHCT9-12URT-Ie-18**
COMMON COMPETENCIES				
LESSON 7: APPLYING SAFETY MEASURES IN FARM OPERATIONS (SMF)				
• Work tasks in farm operations • Places for safety measures • Time for safety measures • Tools, materials, and outfits	The learner demonstrates an understanding of the underlying theories in participating workplace communication.	The learner independently participates in work place communication based on TESDA Training Regulations.	**LO 1. Determine areas of concern for safety measures.** 1.1 Identifyworktasks in line with farm operations. 1.2 Determine place for safety measures in line with farm operations. 1.3 Determine time for safety measures in line with farm operations. 1.4 Prepare appropriate tools, materials and outfits in line with job requirements.	**TLE_AFAHCT9-12SMF-If-19**
• Safety precautions in using tools • PPE • Effectivity/shelf life/expiration of materials • Tips for emergency procedures • Hazards/risks in the workplace • Principles of HACCP			**LO 2. Apply appropriate safety measures.** 1.1 Use tools and materials according to specifications and procedures. 1.2 Wear outfits according to farm requirements. 1.3 Observe strictly the Effectivity/shelf life/expiration of materials. 1.4 Know and follow emergency***procedures*** to ensure a safework requirement. 1.5 Identify and report hazards in the workplace in line with farm guidelines.	**TLE_AFAHCT9-12SMF-Ig-h-20**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Proper storage of tools, materials and outfit • Label unused materials • Waste management			**LO 3. Safekeep/dispose tools, materials and outfit.** 3.1 Clean and store used tools and outfit in designated areas. 3.2 Label properly and store unused materials according to anufacturers.recommendation and farm requirements. 3.3 Dispose ***waste materials*** according to manufacturers, government and farm requirements.	**TLE_AFAHCT9-12SMF-Ii-21**
LESSON 8: USING FARM TOOLS AND EQUIPMENT (FTE)				
• Farm tools and their uses • Pre-operational check up of tools	The learner demonstrates an understanding of the underlying theories in using farm tools and equipment	The learner independently uses farm tools and equipment based on manufacturers manual.	**LO 1. Select and use farm tools.** 1.1 Identify appropriate farm tools according to requirement/use. 1.2 Check and report for faults and defects of farm tools in accordance with farm procedures. 1.3 Safely use appropriate tools and equipment according to job requirements and manufacturers conditions.	**TLE_AFAHCT9-12FTE-Ij-22**
• Farm equipment and their uses • Pre-operation check-up of equipment • Safety procedures in the use of equipment			**LO 2. Select and operate farm equipment** 2.1 Identify appropriate farm equipment. 2.2 Read carefully instructional manual of the farm tools and equipment prior to operation. 2.3 Conductpre-operation check-up in line with manufacturers manual. 2.4 Identify and report faults in farm equipment in line with farm procedures. 2.5 Use farm equipment according to its function. 2.6 Follow safety procedures.	**TLE_AFAHCT9-12FTE-IIa-b-23**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Maintenance of tools and equipment			**LO 3. Perform preventive maintenance** 3.1 Clean tools and equipment immediately after use in line with farm procedures. 3.2 Perform routine check-up and maintenance. 3.3 Store tools and equipment in designated areas in line with farm procedures.	**TLE_AFAHCT9-12FTE-IIc-24**
LESSON 9: PERFORMING ESTIMATION AND BASIC CALCULATION (EBC)				
• Farm inputs • Labor requirement • Estimate farm inputs and labor requirements	The learner demonstrates an understanding of the underlying theories in performing estimation and basic calculation.	The learner independently performing calculation and basic calculation based on TESDA Training Regulations.	**LO 1. Perform estimation.** 1.1 Identify job requirements from written or oral communications. 1.2 Estimate quantities of materials and resources required to complete a work task. 1.3 Estimate the time needed to complete a work activity. 1.4 Make accurate estimate for work completion. 1.5 Report estimate of materials and resources to appropriate person.	**TLE_AFAHCT9-12EBC-IId-25**
• Perform calculation • System of measurement • Units of measurement • Conversion of units • Fraction and decimals • Percentage and ratio			**LO 2. Perform basic workplace calculation.** 2.1 Identify calculations to be made according to job requirements 2.2 Identify correct method of calculation. 2.3 Ascertain system and units of measurement to b*e* followed. 2.4 Perform calculation needed to complete work tasks using the four basic process of addition, division, multiplication and subtraction. 2.5 Calculate whole fraction, percentage and mixed number to complete the task.	**TLE_AFAHCT9-12EBC-IIe-26**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
CORE COMPETENCIES (GENERAL)				
LESSON 10: PREPARING LAND FOR HORTICULTURAL CROP PRODUCTION (LHC)				
• Planting plan and its interpretation for a range of crops - Different planting plans (based on crops to be planted) • Identifiction of methods and order of cultivation - Methods of cultivation - Order of cultivation • OSHS hazards and risks, including appropriate controls - Occupational Safety and Health Standards (relating to preparation of land) • Selection, use and maintenance of PPE - Meaning of PPE? • Environmental implications of site cultivation and legislations - Different environmental implications - Environmental rules and regulations/ legislations - Assessing environmental implications - Necessary actions to be taken based on assessment	The learner demonstrates an understanding of concepts, underlying theories and principles in preparing land for horticultural crop production.	The learner independently prepares land for hortcultural crop production based on required task.	**LO 1. Prepare for cultivation.** 1.1 Interpret requirements for the work to be undertaken according to planting plan. 1.2 Identify the method and order of cultivation from the planting plan. 1.3 Interpret the method and order of cultivation from the planting plan. 1.4 Identify Occupational Health and Safety hazards in accordance with OHS requirements and procedures. 1.5 Assess OHS hazards in accordance with OHS requirements and procedures. 1.6 Implement suitable controls in OHS hazards in accordance with OHS requirements and procedures. 1.7 Select suitable PPE. 1.8 Maintain suitable PPE. 1.9 Use suitable PPE. 1.10 Identify the environmental implications of cultivating the site. 1.11 Assess environmental implication of cultivating the site. 1.12 Take responsible action based on the assessment.	**TLE_AFAHCT9-12LHC-IIf-h-27**
• Types, uses and selection of vehicles and equipment for site cultivation • Maintenance and servicing of vehicles and equipment - Inspection and minor			**LO 2. Prepare the cultivating equipment.** 2.1 Select the vehicles and equipment required for site cultivation according to the planting plan and organization guidelines. 2.2 Service the vehicles and equipment that are not in good condition and replace	**TLE_AFAHCT9-12LHC-IIh-j- 28**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
troubleshooting of vehicles and equipment • Proper disposal of wastes related to maintenance and servicing work - Environmental rules and regulations on waste disposals • Documentation and record keeping of maintenance and servicing activities • 5S and 3Rs			worn-out parts to ensure reliability during cultivation. 2.3 Adjust the vehicles and equipment to ensure reliability during cultivation. 2.4 Dispose safely and appropriately all containers, leftover fluids, waste and debris from the maintenance and servicing work. 2.5 Document all maintenance and servicing works according to the requirements of the organization's record keeping system.	
• Land clearing operation - Removal of previous crop - Incorporating - Burning • Cultivation practices and procedures - Reading cultivation plan • Occupational safety and health standards hazards and risks related to soil cultivation • Selection, use and maintenance of PPE • Operation, including adjustments of vehicles and equipment for quality cultivation • Interpretation of schedule, resources and cultivation requirements from the planting plan			**LO 3. Cultivate soil.** 3.1 Remove previous crop or land clearance according to the organizations' guidelines. 3.2 Incorporate previous crop or land clearance according to the organizations guidelines. 3.3 Burn previous crop or land clearance according to the organizations' guidelines. 3.4 Follow cultivation plan for each site. 3.5 Complete cultivation plan for each site. 3.6 Assess OHS hazards 3.7 according to OHS procedures and requirements. 3.8 Implement suitable controls for OSHS hazards according to OSHS procedures and requirements. 3.9 Use suitable personal protective equipment. 3.10 Maintain suitable personal protective equipment. 3.11 Operate vehicles and equipment in a safe, effective and efficient manner and at right speeds to suit the conditions. 3.12 Adjust the vehicles and equipment as necessary to maximize the quality of cultivation.	**TLE_AFAHCT9-12LHC-IIIa-d 29**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			3.13 Meet the target schedule, resources and quality requirements of the planting plan all the time.	
• Planting layout • Soil profiling • Fertilizers, ameliorants, and/or other pre-planting treatments - FPA guidelines - OSHS • Apply weed and pest control measures - Types of weed control measures - Different pest control measures • Assessment of environmental implications of site preparation - Different environmental implications of site preparation - Legislations relevant to site preparations - Required actions to be taken based on assessment			**LO 4. Prepare site for planting.** 4.1 Complete the planting layout and soil profiles as required by the planting plan. 4.2 Apply fertilizers, ameliorants, and/or other pre-planting treatments as required by the planting plan. 4.3 Apply weed and pest control measures as required by the planting plan. 4.4 Assess the environmental implications of site preparation and, if required, take the necessary action.	**TLE_AFAHCT9-12LHC-IIIe-h 30**
• Clean and store equipment according to manufacturers' specifications, organizational procedures and regulations • Proper disposal of wastes from cleaning and maintenance work - Environmental rules and regulations of wastes disposals • Documentation and record keeping - Land preparation activities • Waste disposal activities			**LO 5. Complete land preparation operations.** 5.1 Clean and store vehicles and equipment to minimize damage according to manufacturer's specifications, organizational procedures, and regulations. 5.2 Dispose safely and appropriately all containers, leftover fluids, waste and debris from the cleaning and maintenance work. 5.3 Complete all required records and documentation accurately and promptly according to organizational requirements.	**TLE_AFAHCT9-12LHC-IIIi-j-31**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 11: IMPLEMENTING A POST-HARVEST PROGRAM (IPH)				
• Types of post-harvest operations. • Marketing planmaterial safety data sheets (MSDS) • Types, uses and selection of materials, tools and machinery equipment for post-harvest activities • Pre-operational and safety checks on machinery, tools and equipment • OHS hazards and risks assessment and its control - OSHS - Reporting to supervisor Selection, use and maintenance of PPE	The learner demonstrates an understanding of the underlying concepts and principles in implementing a post-harvest program.	The learner independently performs the post harvest program based on the farm environment procedure/ legislation and industry standards	**LO 1. Prepare for implementation of post-harvest operations.** 1.1 Identify post-harvest operations to be performed according to farm work procedures, marketing plan, and industry guidelines. 1.2 Select materials, tools, equipment, and machinery according to farm work procedures. 1.3 Carry-out pre-operational and safety checks on tools, equipment, and machinery according to manufacturer's specifications and farm work procedures. 1.4 Assess OHS hazards in accordance with OSHS policies and procedures. 1.5 Implement suitable controls to OHS hazards according to OSHS policies and procedures. 1.6 Report on assessment and control of OHS hazards to supervisor. 1.7 Use suitable safety and personal protective equipment (PPE). 1.8 Maintain suitable safety and personal protective equipment (PPE).	**TLE_AFAHCT9-12IPH-IVa-b-32**
• Identification the farm work team • Task coordination and consultation with supervisor • Assessment of environmental implications of post-harvest work - Different environmental implications of post-harvest work - Control of environmental implications of post-harvest work based on assessment • Maintenance of clean, safe and hygienic work area			**LO 2. Coordinate post-harvest work.** 2.1 Coordinate in a sequential, timely and effective manner with the farm work team. 2.2 Undertake post-harvest operations according to OHS requirements and with due consideration of the environmental implications. 2.3 Maintain a clean, safe and hygienic work area throughout the completion of work.	**TLE_AFAHCT9-12IPH-IVc-d-33**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Grade harvested produce • Label harvested produce • Handle and disposal of out-of-specification/standardproduce - Identify out-of-specification/ standard produce • Types and selection of post-harvest treatments • Conform the timing, rate, application method, environmental requirements and handlingttechniqueswith the requirements of harvested produce • Different post harvest practices • Minimize damage to produce - Types of post harvest damages • Clean and maintain tools, equipment and machinery			**LO 3. Implement post-harvest work.** 3.1 Grade harvested produce according to the marketing plan and farm work procedures. 3.2 Label harvested produce according to the marketing plan and farm work procedures. 3.3 Dispose produce that does not meet specifications and farm standards according to farm environmental procedures. 3.4 Select post-harvest treatments according to harvested produce requirements, farm integrated pest management strategy and the marketing plan. 3.5 Follow timing, rate, application method, environmental requirements and handling techniques to the requirements of the harvested produce, farm work procedures, and industry best practices. 3.6 Apply post-harvest practices that are economical, methodical and meet established work schedules and with minimum damage to produce. 3.7 Maintain tools equipment and machinery according to farm work procedures.	**TLE_AFAHCT9-12IPH-IVe-g-34**
• Waste disposal requirements of the farm - Types of farm wastes - Types of hazardous materials - Environmental legislations • Operational tasks in the farm relating to waste disposal • Monitor waste collection and disposal • Report on impact of waste disposals to supervisors			**LO 4. Implement hazardous waste disposal guidelines.** 4.1 Review the waste disposal requirements of the farm. 4.2 Determine the operational tasks related to waste disposal 4.3 Monitor the collection and disposal of waste according to farm environmental procedures. 4.4 Report promptly the conditions likely to impact on business viability.	**TLE_AFAHCT9-12IPH-IVh-35**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
- Various impacts of waste disposal to business viability - Reporting procedures				
• Packaging requirements for agronomic produce • Determine marketing plan relating to packaging • Types of packaging materials, including environment-friendly materials • Package produce • Documentation and record keeping of packaging processes			**LO 5. Implement packaging requirements of produce.** 5.1 Determine operational task on packaging requirements specified in the marketing plan and farm work procedures. 5.2 Conform packaging of produce to the requirements of harvesting, marketing plan and industry best practice. 5.3 Select packaging materials based on environmentally sound principles. 5.4 Record packaging processes according to farm work procedures.	**TLE_AFAHCT9-12IPH-IVi-36**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Types of storage facility • Storage principles and practices; good warehouse keeping procedures - Cool chain principles and practices • Determine marketing plan relating to storage of produce • Storage requirements for horticultural produce - Characteristics and procedures for the use of cold storage rooms - Correct storage temperatures for a range of produce - Humidity levels and their effect on the quality of produce • Handle horticultural produce • Hygiene issues in the handling and storage of plant produce • Monitor storage processes and facilities • Apply remedial actions based on monitoring results • Documentation and recording of storage processes and conditions			**LO 6. Implement storage requirements of produce.** 6.1 Identify types of storage facility. 6.2 Apply storage principles and practices according to good warehouse keeping procedures. 6.3 Review storage requirements in the marketing plan. 6.4 Determine operational tasks on storage requirements specified in the marketing plan and farm work procedure. 6.5 Conform storage and handling of produce to the requirements of the harvested produce, marketing plan, and industry best practices. 6.6 Monitor storage processes and facilities 6.7 Apply remedial actions based on monitoring activities. 6.8 Record storage processes and conditions according to farm work procedures.	**TLE_AFAHCT9-12IPH-IVj-37**
LESSON 12: IMPLEMENTING A PLANT NUTRITION PROGRAM (IPN)				
• Types of plant species and varieties • Analyze nutrients/composition of soil - Soil sampling techniques - Soil analysis • Application of materials for soil and plant treatments	The learner demonstrates an understanding of the underlying concepts and principles in implementing plant nutrition program.	The learner independently performs the plant nutrition program based on the TESDA Training Regulation and Plant Nutrition Requirement Manual.	**LO 1. Prepare for implementation of the plant nutrition program.** 1.1 Identify goals and target site for implementation of the plant nutrition program. 1.2 Identify soils, plant species, and varieties according to farm work procedures. 1.3 Follow soil sampling techniques/procedures.	**TLE_AFAHCT9-12IPN-Ia-b-38**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
- Different materials for soil and plant treatments - Sourcing of materials • OHS hazards, risks, and its control - OSHS - Environmental rules and regulations • Selection, use, and maintenance of PPE			1.4 Analyze soil composition/nutrients of the area and adjacent lands following the soil sampling procedures. 1.5 Identify materials for soil and plant treatments. 1.6 Use and store material for soil and plant treatments per manufacturers' specifications. 1.7 Assess OHS hazards in accordance with OHS requirements and procedures. 1.8 Control OHS hazards in accordance with OHS requirements and procedures. 1.9 Use suitable personal protective equipment (PPE) based on job/OHS requirements and procedures. 1.10 Maintain personal protective equipment (PPE) based on job/OHS requirements and procedures.	
• oil test kit • Soil ph monitoring and plant growth • soil pH • Selection and sourcing of products useful in changing soil ph, • Application of products - Types of application Methods • Assess application methods environmental implications of application methods			**LO 2. Monitor soil pH.** 2.1 Identify the materials inside the soil test kit. 2.2 Monitor soil pH during the implementation in relation to plant nutrition requirements and according to farm work procedures. 2.3 Determine the factors affecting the soil pH. 2.4 Select products useful in changing soil pH according to farm work procedures. 2.5 Source products that are useful in changing soil pH according to farm work procedures. 2.6 Assess product application methods according to product type, soil type, farm work procedures, and in due consideration of the environmental implications.	**TLE_AFAHCT9-12IPN-Ic-39**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE

• Common nutrient deficiency and toxicity problems
  - Common nutrient deficiency and toxicity problems in plants
  - Visual inspections of deficiency and toxicity
  - Plant Nutrient Requirement
  - Soil Nutrients
• C causes of nutritional or toxicity problems.
• Selection of soil ameliorants
  - Different soil ameliorants
• Sources soil ameliorants
			LO 3. Determine nutritional problems in plants.
			3.1 Identify common nutrient deficiency and toxicity problems in plants using visual inspection in accordance with crop production manuals.
			3.2 Consult supervisor and/or nutritional specialist to determine causes of nutritional or toxicity problems.
			3.3 Select soil ameliorants to improve soil fertility according to farm work procedures.
			3.4 Source soil ameliorants to improve soil fertility according to a farm work procedures.
				TLE_AFAHCT9-12IPN-Id-40

• Types and uses of various fertilizers • Soil types • Assessment of fertilizer application methods • Plant growth cycle • Farm fertilizer calendar • Handling and storage of fertilizers • Environmental implications of fertilizer application			**LO 4. Prepare to use fertilizers.** 4.1 Select the fertilizer to be used according to soil nutrient requirements, farm work procedures, in consultation with the supervisor and/or nutritional specialist and in due consideration of the environmental implications. 4.2 Assess fertilizer application methods according to fertilizer type, soil type, farm work procedures, and in due consideration of the environmental implications. 4.3 Determine the plant growing cycle and the farm fertilizer calendar. 4.4 Handle fertilizers cautiously to ensure minimal detrimental environmental impact according to farm work procedures. 4.5 Store fertilizers properly to ensure minimal detrimental environmental impact according to farm work procedures.	**TLE_AFAHCT9-12IPN-Ie-g-41**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Selection and uses of farm tools, equipment, and machinery for fertilizer application • Pre-operational and safety checks on tools, equipment and machinery • Calibration and adjustment of tools, equipment, and machinery			**LO 5. Prepare application equipment.** 5.1 Identify the types and uses of tools, equipment, and machinery for fertilizer application. 5.2 Observe pre-operational safety procedures on tools, equipment, and machinery according to manufacturers' specifications and farm work procedures. 5.3 Calibrate and adjust tools, equipment, and machinery according to manufacturer's guidelines and farm work procedures.	**TLE_AFAHCT9-12IPN-Ih-42**
• Selection of fertilizers based on soil analysis and plant needs • Calculation of fertilizer application rates • Proper fertilizer application, including rate, timing, and method • Operate equipment and Machinery for fertilizer application • Record keeping of product application activities • Documentation of target plant response to the plant nutrition program			**LO 6. Apply specific products at appropriate rates.** 6.1 Select specific products of fertilizers based on suitability to meet plant needs according to farm work procedures. 6.2 Calculate product application rates to optimise plant benefit and minimize environmental impact according to manufacturers' specifications and farm work procedures. 6.3 Apply specific products at the correct rate, timing, and method according to the product type and analysis, manufacturers specifications, farm work procedures, and in due consideration of the environmental implications. 6.4 Record product applications according to farm work procedures. 6.5 Document the target plant response to the plant nutrition program, as well as any non-target effects, such as, environmental impact or pest responses according to farm work procedures. 6.6 Report findings on product applications to supervisors according to farm work procedures.	**TLE_AFAHCT9-12IPN-Ii-j-43**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 13: CONTROLLING WEEDS (CTW)				
• Different types of weeds • Different types of beneficial organisms • Scope, density and size of weed infestation • Level of weed infestations - Integrating Pest Management (IPM) principles	The learner demonstrates an understanding of the underlying concepts and principles in controlling weeds.	The learner independently performs weeds control based on the Integrated Pest Management (IPM) Manual and Crop Production Manual.	**LO 1. Assess weed infestation.** 1.1 Record weeds and beneficial organisms in the field in accordance with crop production manuals. 1.2 Report weeds and beneficial organisms in the field in accordance with crop production manuals. 1.3 Assess scope, density, and size of the infestation based on farm work procedures. 1.4 Identify levels of weed infestations tolerated by the client, market or environment in accordance with the integrated pest management (IPM) strategy. 1.5 Identify weed infestation levels, which plant health or growth objectives are compromised in accordance with crop production manuals. 1.6 Obtain professional advice as required according to enterprise guidelines.	**TLE_AFAHCT9-12CTW-IIa-c-44**
• Methods of controlling weeds - IPM principles • Tools, equipment and implements for weed control • PPE • Environmental implications of weed control measures • OSHS requirements • Environmental legislative requirements			**LO 2. Plan the implementation of control measures.** 2.1 Select control measures suitable for the infestation in accordance with the IPM strategy. 2.2 Select tools, equipment and implement for each work activity according to enterprise work procedures. 2.3 Assess OHS Hazards in accordance with OSHS requirements and procedures. 2.4 Select control measures in full consideration of environmental implications. 2.5 Select suitable safety equipment and	**TLE_AFAHCT9-12CTW-IId-f-45**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			personal protective equipment (PPE) in accordance with OSHS requirements and procedures. 2.6 Maintain suitable safety equipment and personal protective equipment (PPE) in accordance with OHS requirements and procedures. 2.7 Store suitable safety equipment and personal protective equipment (PPE) in accordance with OSHS requirements and procedures.	
• Work coordination procedures • Implementation of control measures - IPM activities - Cover cropping to control harmful weeds - Land preparation to eliminate weeds - OSHS requirements • Maintenance of clean and safe work area • Maintenance of records			**LO 3. Implement control measures.** 3.1 Coordinate enterprise work team, contractors, and IPM product suppliers in a sequential, timely and effective manner in consultation with the supervisor and following farm work procedures. 3.2 Implement control measures according to the IPM principles (e.g.,Water Management for Rice) and OHS requirements. 3.3 Maintain safe and clean work area throughout and on completion of each work activity according to OHS requirements. 3.4 Prepare land to ensure weed elimination in accordance with farm work procedures. 3.5 Maintain records as required by legislation and enterprise guidelines.	**TLE_AFAHCT9-12CTW-IIg-i-46**
• Monitor control methods and their side effects on: ▪ Plants ▪ Animals ▪ External environment ▪ Range of site monitoring • Effectivity of control methods - Analysis techniques used in IPM program • Adjustments to IPM control methods			**LO 4. Monitor control methods.** 4.1 Monitor control methods to identify side effects to other plants, animals or external environment in accordance with farm work procedures. 4.2 Assess effectiveness of control methods in reference to specified industry and enterprise standards. 4.3 Implement adjustments to IPM control methods where necessary to meet enterprise specifications.	**TLE_AFAHCT9-12CTW-IIj-IIIa-47**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 14: PREPARING AND APPLYING CHEMICALS (PAC)				
• Nature and level of pests infestations - Types of weeds and insects and its effects on crops - Common plant diseases and theirsymptoms • Requirement for chemical use as an option to IPM • Hazard and risk analysis of different chemical options • Requirements for chemical application	The learner demonstrates an understanding of the underlying concepts and principles in preparing and applying chemicals.	The learner independently performs preparation and application of chemicals based on the Crop Production Manual, IPM and Enterprise Guidelines.	**LO 1. Determine the need for chemical use.** 1.1 Identify nature and level of the pest, weed infestation or disease based on crop manuals and farm work procedures. 1.2 Determine common plant diseases and their symptoms. 1.3 Assess need for action and the requirement for chemical use as an option within an integrated pest management strategy based on farm work procedures. 1.4 Undertake hazard and risk analysis of different chemical options in accordance with OSHS requirements and environmental policies and procedures. 1.5 Identify requirement for chemical application including coverage by appropriate insurance according to enterprise guidelines and chemical application regulations. 1.6 Confirm requirement for chemical application including coverage by appropriate insurance according to enterprise guidelines and chemical application regulations.	**TLE_AFAAHCT9-12PAC-IIIb-f-48**
• Principles and practices of using chemicals • MSDS • Preparation of chemicals - legislative requirements and codes of practice - OSHS			**LO2. Prepare appropriate chemical.** 2.1 Determine the principles and practices of using chemicals. 2.2 Read Chemical Label and Material Safety Data Sheets (MSDS) in accordance with manufacturers' specifications. 2.3 Understand Chemical Label and Material Safety Data Sheets (MSDS) in accordance with manufacturers' specifications. 2.4 Check labels to ensure that chemicals meet user requirements and specifications	**TLE_AFAHCT9-12PAC-IIIg-j-49**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			in accordance with farm work procedures and codes of practice. 2.5 Prepare chemicals for the intended purpose to suit the organization's chemical use strategy based on manufacturers' specifications and farm work procedures. 2.6 Follow legislation and regulations concerning chemical use in accordance with manufacturers' specifications and government regulating bodies. 2.7 Identify Occupational Health and Safety (OHS) hazards and risks and risk control requirements associated with use of the chemical in accordance with OHS requirements and procedures.	
• PPE based on product label and MSDS • Pre and post-operative checks on equipment • Maintenance of tools, implements and equipment • Calibration and adjustment of equipment and tools • Mixing of chemicals - Calculation of appropriate mixing rates - Chemical use according to product label and MSDS - Chemical compatibility - OSHS - Legislative requirements and Codes of Practice relevant to chemical use and hazardous substances			**LO 3. Prepare to use chemicals according to the label and MSDS.** 3.1 Select Personal protective equipment according to the product label and MSDS. 3.2 Check Personal Protective Equipment according to the product label and MSDS. 3.3 Follow requirements for the selection, preparation, and adjustment of application equipment and tools for the appropriate chemicals based on manufacturers' specifications. 3.4 Follow requirements for pre and post-operative checks on equipment based on manufacturers' specifications. 3.5 Report damage, wear or malfunctions of any equipment in accordance with organizational reporting system. 3.6 Repair damage, wear or malfunctions of any equipment in accordance with organizational reporting system. 3.7 Define mixing rates as per manufacturers'	**TLE_AFAHCT9-12PAC-IVa-c-50**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			specifications. 3.8 Calculate mixing rates as per manufacturers' specifications. 3.9 Follow directions, standards and legislative requirements for mixing chemicals based on manufacturers' specifications, OHS requirements, and government regulations.	
• Meteorological conditions/forcasts in relation to - Chemical Use • Hazards of chemicals • Control risks - Environmental effects of chemicals - Modes of chemical absorption and paths of entry, including risks to applicators and the public • Calibration and adjustment of equipment and tools • Procedures and precautions in using chemicals • Licensing requirements and relevant government authorities in chemical handling and application - Drift management - OSHS - Legislative requirements and Codes of Practice relevant to chemical use and hazardous substances • Following Chemical Spills Procedures or Accident Procedures • First Aid Practices and Procedures			**LO 4. Apply chemicals.** 4.1 Assess meteorological forecasts and condition prior to and during application per enterprise guidelines and based on PAGASA weather bulletins. 4.2 Identify hazards of particular chemicals in accordance to manufacturers' specifications and OHS procedures. 4.3 Assess risks to others and the environment in accordance with OHS requirements and procedures and environmental regulations. 4.4 Control risks to others and the environment in accordance with OHS requirements and procedures and environmental regulations. 4.5 Follow application equipment calibration procedures according to manufacturers' operating manual. 4.6 Interpret procedures and precautions for the use of the chemicals from labels and accreditation requirements based on enterprise guidelines. 4.7 Determine requirements for chemical handling and application according to directions, standards and legislative requirements. 4.8 Apply chemicals safely and effectively according to directions and OHS	**TLE_AFAHCT9-12PAC-IVc-e-51**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			procedures. 4.9 Follow chemical spills or accident procedures in accordance with OHS procedures. 4.10 Provide first aid equipment available on site following OHS procedures.	
• Tools and equipment for cleaning up chemicals • Eequirements and procedures forcleaning: - Sites - Equipment used in chemical applications - Tools used in chemical applications • Proper disposal of unused chemicals, containers and spilled materials • Proper storage of chemicals • Procedures for reporting chemical spills			**LO 5. Clean up following chemical application.** 5.1 Select tools or equipment required to clean up chemicals. 5.2 Follow cleaning requirements of equipment and sites based on farm work procedures and organizational directions and standards. 5.3 Define directions standards and requirements for disposing of unused chemicals, empty containers or spilled material in accordance with OSHS procedures and environmental legislation. 5.4 Follow procedures for reporting chemical spills according to organizational reporting system.	**TLE_AFAHCT9-12PAC-IVf-h-52**
• Record keeping related to chemical use according to: - organization procedures - label directions - legislation • Chemical inventory • PPE • Procedures and requirements for reporting application details to management • Record keeping of injury and poisoning associated with chemical			**LO 6. Record application details.** 6.1 Record application of chemicals according to organizational procedures, label directions and legislation. 6.2 Record correctly the details of the specific chemical concerned in the chemical inventory according to regulations. 6.3 Record inventory of personal protective equipment and application equipment based on organizational reporting system. 6.4 Follow procedures and requirements for reporting application details to senior	**TLE_AFAHCT9-12PAC-IVh-j-53**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
use			management or client based on organizational reporting system. 6.5 Make and provide records of injury or poisoning associated with application of chemicals based on organizational reporting system.	
CORE COMPETENCIES (HORTICULTURAL)				
LESSON 15: ESTABLISHING HORTICULTURAL CROPS (EHC)				
• Selection, preparation, and use of machinery and equipment - Attaching farm implements to machinery • Calibrating machinery and equipment • Pre-operational and safety checks for machinery and equipment • Operating principles and operating methods for machinery and equipment • OHS hazards and risks and its control: - Identification of existing and potential OHS hazards	The learner demonstrates an understanding of concepts, underlying theories and principles in establishing horticultural crops.	The learner independently established horticultural crops based on TESDA Training Regulation and required task.	**LO 1. Prepare machinery and equipment for use.** 1.1 Select machinery and equipment according to manufacturer's specifications and work plan. 1.2 Prepare machinery and equipment according to manufacturer's specifications and work plan. 1.3 Perform pre-operational and safety checks for seeding machinery and equipment. 1.4 Attach securely equipment for operation in accordance with manufacturer's specifications and operating manual. 1.5 Calibrate equipment for operation in accordance with manufacturer's specifications and operating manual. 1.6 Identify existing and potential OHS hazards in the workplace ; 1.7 Assess risks in line with farm requirements and OHS procedures. 1.8 Control risks in line with farm requirements and OHS procedures.	**TLE_AFAHCT9-12EHC-Ia-c-54**
• Soil and weather requirements for optimal seeding conditions • Soil conservation and and suitable			**LO 2. Prepare for horticultural crop establishment.** 2.1 Monitor soil and weather conditions for	**TLE_AFAHCT9-12EHC-Id-f-55**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
land management • Preparation of the requirements for seeding, fertilizing and pest and weed control activities: - Fertilizer types, rates of application and crop nutrient requirements/Integrated nutrients management technique - Types of chemical pesticides and alternative pest control methods (non-chemical)/ Integrated Pest Management - Calculation of pesticide requirements and application rates - Contingency plan			optimal seeding conditions according to farm work procedures. 2.2 Recognize soil conservation and sustainable land management. 2.3 Confirm soil conservation and sustainable land management practices in accordance with farm requirements and environmental concerns. 2.4 Confirm seeding, fertilizer, and pest and weed control against the work plan. 2.5 Prepare seeding, fertilizer, and pest and weed control requirements based on manufacturers' specifications using safe handling procedures. 2.6 Calculate pesticide requirements and application rates. 2.7 Prepare contingency plans for unusual seasonal conditions and pest/disease outbreaks according to farm work procedures.	
• Select, use and maintain PPE • Seeding methods • Fertilizer application - Application techniques - FPA guidelines • Pest and weed control treatments with seeding and fertilizer • Environmental implications of sowing operations and fertilizer application			**LO 3. Sow the crop.** 3.1 Select suitable personal protective clothing and equipment in accordance with OHS requirements. 3.2 Use suitable personal protective clothing and equipment in accordance with OHS requirements. 3.3 Maintain suitable personal protective clothing and equipment in accordance with OHS requirements. 3.4 Perform seeding methods and fertilizer applications in accordance with the seeding/application rate and the work plan. 3.5 Coordinate pest and weed control treatment with seeding and fertilizer	**TLE_AFAHCT9-12EHC-Ig-i-56**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			applications according to the work plan. 3.6 Identify environmental implications associated with sowing operations in line with farm requirements and environmental regulations. 3.7 Assess environmental implications associated with sowing operations in line with farm requirements and environmental regulations. 3.8 Control environmental implications associated with sowing operations in line with farm requirements and environmental regulations.	
• Record keeping related to seeding, machinery and equipment operation • Damage, faults or malfunctions of of machinery and equipment • Cleaning,securing and storing machinery, equipment and materials			**LO 4. Complete seeding operations.** 4.1 Maintain seeding, machinery and equipment operation records in accordance with farm requirements. 4.2 Record machinery and equipment damage malfunctions or irregular performance in line with farm requirements and operating manual. 4.3 Report machinery and equipment damaged. malfunctions or irregular performance in line with farm requirements and operating manual. 4.4 Clean machinery and equipment in line with manufacturers' specifications and farm requirements. 4.5 Secure machinery and equipment in line with manufacturers' specifications and farm requirements. 4.6 Store machinery and equipment in line with manufacturers' specifications and farm requirements.	**TLE_AFAHCT9-12EHC-Ij-57**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 16: COORDINATING A HORTICULTURAL CROP MAINTENANCE PROGRAM (HCM)				
• Identification of site and operational requirements - Crop maintenance program - Site plan - Types and application of crop maintence activities • Range and uses of crop maintenance for tools, equipment and machinery • Pre-operational and safety checks, calibration and adjustments on tools, equipment and machinery • Effects on plant growth, habit and production levels of crop maintenance activities • Locate services in consultation with supervisor and workers • OSHS hazards and risk - PPE selection, use and maintenance - Use and Maintain PPE	The learner demonstrates an understanding of concepts, underlying theories and principles in coordinating a horticultural crop.	The learner independently performs coordinating activities with regard to horticultural crop maintenance based on TESDA Training Regulation.	**LO 1. Prepare for the crop maintenance program.** 1.1 Identify the requirements of the crop maintenance program according to the site plan and farm work. 1.2 Determine the types and application of crop maintenance activities. 1.3 Select crop maintenance materials, tools, machinery, and equipment according to farm work procedures. 1.4 Carry out pre-operational and safety checks, including calibration and adjustments of tools, equipment and machinery according to manufacturer's specifications and farm work procedures. 1.5 Illustrate the effect of crop maintenance activities on plant growth habit and production levels. 1.6 Locate services using site plans and in consultation with the supervisor and workers according to farm work procedures. 1.7 Assess OSHS hazards. 1.8 Control OSHS hazards and risks . 1.9 Select suitable personal protective equipment (PPE) according to farm work procedures and OSHS requirements. 1.10 Use suitable personal protective equipment (PPE) according to farm work procedures and OSHS requirements. 1.11 Maintain suitable personal protective equipment (PPE) according to farm work procedures and OSHS requirements.	**TLE_AFAHCT9-12HCM-IIa-d-58**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Identification of farm work team members and contractors. • Task coordination of maintenance activities • Planning work pattern • Work plan and schedule of main activities • Crop maintenance activities • OSHS requirements • Range of environmental implications • Cleanliness and sanitation, maintenance and ensuring safety of work area			**LO 2. Implement the crop maintenance program.** 2.1 Identify farm work team members and contractors. 2.2 Coordinate work in a sequential, timely and effective manner according to farm work plan and procedures. 2.3 Plan work pattern to cover the site in an efficient, sequential and coordinated manner according to farm work plan and procedures. 2.4 Monitor crop maintenance tasks according to OHS requirements and farm work plan and procedures. 2.5 Undertake remedial action as needed according to farm work procedures. 2.6 Keep the work area clean and safe throughout up to the completion of work in accordance with OSHS requirements.	**TLE_AFAHCT9-12HCM-IIe-h-59**
• Disposal of waste - Proper waste collection and disposal - Cleaning, maintenance and storage of tools and equipment - Environmental rules and regulations • Maintenance of tools and equipment • Recording and reporting of outcomes of maintenance program.			**LO 3. Complete crop maintenance activities.** 3.1 Remove waste material properly from the site according to farm work procedures, environmental regulations, and OSHS requirements. 3.2 Dispose waste material properly from the site according to farm work procedures, environmental regulations, and OSHS requirements. 3.3 Maintain equipment and 3.4 machinery according to farm work procedures 3.5 Store tools, equipment and machinery according to farm work 3.6 procedures and manuals.	**TLE_AFAHCT9-12HCM-IIi-j-60**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			3.7 Record work outcomes according to farm reporting procedures. 3.8 Report work outcomes to the supervisor according to farm reporting procedures.	
LESSON 17: COORDINATING HORTICULTURAL CROP HARVESTING (HCH)				
• Identification of crops to be harvested - Maturity parameters for a range of crops - Farm quality procedures and crop characteristics relative to varying market requirements • Identification of requirements and procedures - Crop quality - Suitable weather conditions - Environmental factors affecting crop harvesting activities • Determination of maturity index - Experience - Specification charts - Age - Devices - Clients requirements • Selection and use of harvesting tools, equipment and machinery - Pre-operational and safety checks on tools, equipment and machinery - Licensing requirements for use of machinery and equipment • OSHS hazards and risks. • PPE selection, use and maintenance • OSHS (wearing of PPE)	The learner demonstrates an understanding of concepts, underlying theories and principles in performing horticultural crop harvesting activities.	The learner independently performs horticultural crop harvesting activities based on TESDA Training Regulation and required tasks.	**LO 1. Prepare for crop harvesting.** 1.1 Identify crop for harvest according to farm work plan and procedures. 1.2 Identify requirements and procedures to assure crop quality, including suitable weather conditions, farm work plan and procedures. 1.3 Determine crop maturity based on experience, specification charts, aids or devices and according to clients preferences, farm and industry quality assurance specifications. 1.4 Select tools, equipment and machinery and pre-operational and safety checks conducted, according to harvest requirements, manufacturers' specifications, and farm work procedures. 1.5 Identify OHS hazards. 1.6 Implement suitable controls according to OHS requirements. 1.7 Use suitable personal protective equipment (PPE) according to farm work procedures and OHS requirements. 1.8 Maintain suitable personal protective equipment (PPE) according to farm work procedures and OHS requirements.	**TLE_AFAHCT9-12HCH-IIIa-d-61**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Task coordination of harvesting activities • Harvesting of crops - OHS requirements and environmental implications related to harvesting - Environmental implication of the activity • Record keeping related to harvesting - Harvesting records • Cleanliness, maintenance, and safety of work area			**LO 2. Coordinate harvesting activities.** 2.1 Identify farm work team members, contractors and clients. 2.2 Coordinate work tasks in a sequential, timely, and effective manner according to farm work procedures. 2.3 Undertake harvesting of the crop according to harvest requirements, OHS requirements, and farm work procedures. 2.4 Maintain harvest records according to farm work procedures. 2.5 Keep the work area clean and safe throughout and during completion of work according to OHS requirements.	**TLE_AFAHCT9-12HCH-IIIe-g-62**
• Maintenance of farm tools, equipment, and machinery - Servicing and maintenance of farm tools and machinery • Provision of tools , equipment and machinery - Tools, equipment and machinery for harvest • Maintain quality of harvest - Factors affecting quality of harvest - Packaging requirements - Maintenace of quality of harvest including cooling requirements and transport • OSHS requirements			**LO 3. Maintain harvest requirements.** 3.1 Maintain farm tools, equipment and machinery in effective working order according to farm work procedures. 3.2 Provide harvest workers with tools, equipment and machinery in accordance with harvest requirements. 3.3 Identify the factors affecting the quality of harvest. 3.4 Determine points of considerations regarding packaging requirements. 3.5 Maintain quality of harvest including cooling and transport requirements. 3.6 Remove, empty or load full containers into transport vehicles according to farm work procedures. 3.7 Observe OHS requirements.	**TLE_AFAHCT9-12HCH-IIIh-j-63**
• Utilization and maintenance of PPE • Proper handling and transport procedures for harvested produce • Sorting and grading - characteristics for a range of crops			**LO 4. Monitor crop quality throughout harvest.** 4.1 Use PPE according to OHS procedures. 4.2 Maintain PPE according to OHS procedures. 4.3 Handle crop properly to prevent damage according to farm work procedures.	**TLE_AFAHCT9-12HCH-IVa-d-64**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Storage requirements for a range of crops • Transport of harvest			4.4 Sort the crop according to client, farm and industry quality assurance specifications. 4.5 Grading the crop according to client, farm and industry quality assurance specifications. 4.6 Store the crop to minimize post harvest deterioration according to farm work procedures. 4.7 Transport crop with minimum damage according to farm work procedures.	
• Confirmation of delivery details - Delivery arrangements - Quantity of delivery - Timing of delivery • Delivery of crops - Delivery procedures Preventing damage - Delivery of documentation according to farm work procedures - Accomplishment of farm documents according to farm work procedures			**LO 5. Deliver of crop to specified destination.** 5.1 Confirm delivery details including quantity, timing and destination according to farm work procedures. 5.2 Deliver crop according to standard farm delivery procedures. 5.3 Complete delivery of documentation accurately according to farm documentation procedures.	**TLE_AFAHCT9-12HCH-IVe-g-65**
LESSON 18: UNDERTAKING PROPAGATION ACTIVITIES (UPA)				
• Clarification of workplace information • Planting program • Material safety data sheets (MSDS) • Standard operation procedure • Verbal directions from supervisor • Report on OHS hazard and risks • OHS hazards and risks • Preparation, selection, use and maintenance of PPE	The learner demonstrates an understanding of concepts, underlying theories and principles in plant propagation activities.	The learner independently performs propagation activities based on TESDA Training Regulation and Plant Propagation Manual.	**LO 1. Prepare for plant propagation.** 1.1 Clarify workplace information based on instructions. 1.2 Asses reported OHS hazard in the work area according to OHS requirements and standard reporting. 1.3 Report OHS hazard in the work area according to OHSrequirements and standard reportingguidelines. 1.4 Prepare appropriate tools and equipment	**TLE_AFAHCT9-12UPA-IVh-j-66**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Preparation of tools and equipment - Different tools andequipment for plant propagation - Sanitization of tools - Segregation of defective tools - Minor troubleshooting - Basic repair • Collection of propagation material - Basic plant physiology - Asexual propagation methods and their applications - Propagation techniques for a range of plants - Collection procedures for propagation materials • Maintenance and storage procedures for propagation materials - Maximum viability			for propagation activities, including PPE according to species' requirements, crop manuals and OHS requirements. 1.5 Collect propagation as needed, according to species' requirements and crop manuals. 1.6 Maintain propagation as needed, according to species requirements and crop manuals. 1.7 Store propagation as 1.8 needed, according to species' requirements and crop manuals.	
• Pre-treatment procedures for a range of propagation methods and species • Plant propagation processes - Propagation techniquesaccording to species' - requirements - Proper handling of propagation materials - Labelling of propagation materials • Water and nutrient applications based on: - Media conditions - Plant requirements - Propagation techniques			**LO 2. Propagate plants.** 2.1 Apply pre-treatment procedures according to standard propagation method and species' requirements. 2.2 Carry out propagation techniques according to species' requirements and OHS requirements. 2.3 Handle propagation material properly according to species' requirements. 2.4 Apply labels according to farm work procedures. 2.5 Apply water and nutrients according to media conditions, plant requirements and propagation techniques. 2.6 Monitor plant health according to species' requirements and farm work procedures.	**TLE_AFAHCT9-12UPA-Ia-e-67**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Plant health monitoring and appropriate corrective actions - Monitoring procedures - Common problems in plant propagation - Remedial actions taken • OHS legislative requirements and procedures			2.7 Take remedial action to ensure plant health according tospecies' requirements and farm work procedures. 2.8 Carry-out propagation activities according to OSHS.	
• Record keeping related to propagation activities • Records: - Date of propagation, - Type of propagation - Number of plants - Source of propagation - Material, - Treatments carried out - Spray records • Cleaning, storage and maintenance requirements for tools and equipment • Proper handling and disposal of waste materials • Different wastes: - Propagation material - Potting media wastage - Damaged plants - Damaged pots • Hygiene practices • OSHS			**LO 3. Complete propagation activities.** 3.1 Complete records accurately and at the required time according to standard recording system. 3.2 Clean and store tools and equipment according to manufacturers' specifications and manuals. 3.3 Remove waste according toOSHS requirements and environmental regulations. 3.4 Follow hygiene practices according to OSHS requirements and environmental regulations.	**TLE_AFAHCT9-12UPA-If-j-68**
LESSON 19: UNDERTAKING FIELD BUDDING AND GRAFTING (FBG)				
• Preparation of parent plant • Methods of budding/ grafting - Selection and use of rootstock and scion stock	The learner demonstrates an understanding of concepts, underlying theories and principles in	The learner independently performs field budding and grafting activities based on TESDA Training Regulation and	**LO 1. Prepare parent material for budding and grafting.** 1.1 Prepare parent plant according to the species' requirements and organizational	**TLE_AFAHCT9-12FBG-IIa-e-69**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
- Cuttings, buds, dormant or green material, nursery rootstock, rootlings, and mature plants. • Tools and equipment in budding/grafting, including sterilization procedures - Equipment: ▪ Secateurs ▪ Grafting knife • OSHS practices	field budding and grafting activities.	Plant Propagation Manual.	procedures. 1.2 Employ the method of taking bud or graft material according to the species' requirements and standard grafting/budding procedures. 1.3 Sanitize tools and equipment according to manufacturers' specifications. 1.4 Use tools and equipment according to manufacturers' specifications and OHS requirements.	
• Selection of budding/ grafting materials • Stock preparation techniques of differenthorticultural crops • Handling requirements for budding / grafting materials according to crop species • Maintain viability of materials - Storage requirements for budding / grafting materials - Factors affecting viability of materials - maximum viability • Proper collection and disposal of wastes and materials related to budding / grafting • Environmental codes and regulations • OSHS			**LO 2. Prepare budding and grafting materials.** 2.1 Select budding/grafting materials for propagation according to species' requirements, crop manual and farm work procedures. 2.2 Prepare stock in accordance with species' requirements and standard stock preparation procedures. 2.3 Handle budding/grafting materials and stock properly according to species and standard grafting procedures. 2.4 Maintain viability of materials by using appropriate storage procedures in accordance with the proper storage requirements of the species. 2.5 Dispose discarded materials in accordance with organizational waste disposal guidelines.	**TLE_AFAHCT9-12FBG-IIf-j-70**
• Selection of budding/ grafting methods - Procedures/methods for budding/grafting according to			**LO 3. Bud/graft scion work.** 3.1 Select budding/grafting method in accordance with species' requirements. 3.2 Seal bud/graft according to species and	**TLE_AFAHCT9-12FBG-IIIa-c-71**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
crop species • Budding/grafting of scion - Bud/graft sealing requirements - Proper labelling and identification of budded materials - Factors affecting success of budding/grafting operations • Common problems and corrective actions in budding / grafting - Out-of-specs process - Problems with regard to equipment - Equipment performance - Taking corrective actions • Record keeping of budding / grafting activities			standard budding/grafting procedures. 3.3 Apply appropriate labels and identification in accordance with organizational guidelines. 3.4 Cite the different factors affecting the success of operations. 3.5 Identify problems in budding/grafting operations. 3.6 Take corrective actions according to propagation principles. 3.7 Complete appropriate records at the required time in accordance with organizational recording guidelines. 3.8 Report out-of-specification process and equipment performance in line with organizational guidelines.	
• Maintenance and storage of tools and equipment • Handling, storage and/or disposal of unused grafting materials • Manage waste generated • Collection of wastes - Treating - Disposing - Recycling • Record keeping workplace information			**LO 4. Complete budding/ grafting activities.** 4.1 Clean equipment according to manufacturers' manual. 4.2 Store grafting material according to company procedures. 4.3 Dispose grafting material according to company procedures. 4.4 Collect waste generated by both the grafting and cleaning procedures according to company procedures and environmental regulations. 4.5 Apply waste management procedures on waste generated by both the grafting and cleaning procedures according to company procedures and environmental regulations. 4.6 Record workplace information according to organizational procedures.	**TLE_AFAHCT9-12FBG-IIIc-e-72**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
ELECTIVE COMPETENCIES **NOTE: CHOOSE AT LEAST THREE (3) LESSONS INCLUDING RECORD KEEPING AT TWO (2) WEEKS or 20 HOURS PER LESSON**				
LESSON 20A: FOLLOWING SITE QUARANTINE PROCEDURES (FSQ)				
• Decontamination of quarantine site • Quarantine site - whole farm or enterprise premises - isolation area/sickbay • Procedures of decontamination - personal/vehicle decontamination • Potential contaminants - Pathogens entering on clothing/footwear, equipment, vehicles, - Contaminants enter in food stuffs (food for animal or human consumption, vaccines, water or soil, items being delivered to the enterprise or be brought on to the site by new livestock or pests.) • Hand washing • PPE and OSHS requirements • Interpersonal Relationships and Communication	The learner demonstrates an understanding of concepts, underlying theories and principles in following site quarantine procedures.	The learner independently follows site quarantine procedures based on required task.	**LO 1. Prepare to work in quarantine site.** 1.1 Decontaminate personal and/or work vehicles before entering the quarantine site. 1.2 Report contact with potential contaminants according to enterprise requirements. 1.3 Wash hands before handling livestock, feed, plant stock or other products. 1.4 Put on appropriate clothing and footwear before commencing work. 1.5 Secure store street clothing away from livestock, feed or other agricultural produce.	**TLE_AFAHCT9-12FSQ-IIIf-73**
• Safe handling and storage procedures of chemicals and quarantine products - Storing separately feed mixes, soils, growing media and other products • Pest and diseases incidence • Alleged breaches of site quarantine procedures			**LO 2. Work in quarantine site.** 2.1 Handle chemicals for disinfestations and/or administering medications to livestock according to workplace requirements. 2.2 Store chemicals for disinfestation and/or medications of livestock according to workplace requirements. 2.3 Keep separately the different feed mixes,	**TLE_AFAHCT9-12FSQ-IIIg-h-74**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Identify and control OSHS hazards and risks related to quarantine procedures • Proper wastes disposal according to the 5 s and 3 r's • Guidelines and standard operating procedures (SOP). - Waste products ▪ feed spills ▪ Unused/expired vaccine ▪ Biological matter: ▪ semen ▪ embryos ▪ tissue samples ▪ plant cuttings, ▪ infected plants ▪ dead birds and manures • Material safety data sheets • Record keeping of information relating to work in quarantine • Environmental rules and regulations • OSHS requirements			soils and/or growing media and/or other products according to quarantine procedures. 2.4 Mark appropriately the different feed mixes, soils and/or growing media and/or other products according to quarantine procedures. 2.5 Identify and report any cases of pest and disease incidence to supervisor. 2.6 Identify and report any breaches of quarantine procedures to supervisor. 2.7 Identify any OSHS hazards according to enterprise policy and OSHS legislation and codes. 2.8 Take appropriate actions to any OSHS hazards according to enterprise policy and OSHS legislation and codes. 2.9 Dispose all waste products according to SOP. 2.10 Dispose all deceased livestock, unwanted biological materials or damaged/infected plant stocks according to SOP. 2.11 Record information relating to work in quarantine site as required in the SOP.	
• Quarantine policy and procedures before entering the enterprise site • Report procedures for alleged breaches of site quarantine procedures • Lock gates and doors • Maintain security fencing • Check/inspect deliveries for vehicle decontamination • OHS risk and its control			**LO 3. Assist in maintaining site quarantine procedures.** 3.1 Inform all visitors of the quarantine procedures. 3.2 Provide all visitors with appropriate clothing and footwear, if required by SOP. 3.3 Note and report any breaches of quarantine procedures by visitors to supervisor. 3.4 Keep gates and doors locked where required by SOP and supervisor instructions. 3.5 Maintain installed security fencing	**TLE_AFAHCT9-12FSQ-IIIi-75**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			according to supervisors instructions. 3.6 Check deliveries to site to ensure that established proper procedures for vehicle decontamination, unloading and receipt and holding or storage of stock and/or supplies are followed.	
• Consequences of breaching site quarantine procedures • Quarantine site disinfection • Control measure procedures for infected sites • Isolating and monitoring suspected livestock and plant stock exposed in contaminants • Record breach or problem based on SOP • HACCP plan • OHS hazard and risk control			**LO 4. Respond to site quarantine breach or problems.** 4.1 Identify and report the specific problem and its location to supervisor. 4.2 Disinfect quarantine site and location of breach as required according to the specific nature of the problem and SOP. 4.3 Isolate livestock, plant stock suspected of being exposed to contaminants according to SOP. 4.4 Monitor livestock, plant stock suspected of being exposed to contaminants for evidence of contamination according to SOP. 4.5 Record information about the breach or problem according to SOP.	**TLE_AFAHCT9-12FSQ-IIIj-76**
LESSON 20B: COLLECTING SAMPLES FOR A RURAL PRODUCTION OR HORTICULTURE MONITORING PROGRAM (CSR)				
• Horticultural sites/ location - Paddocks - Farm building - Work site - Nurseries - Playing fields - Dams • Purpose and scope of biological sample collection activities - Sample site - Sample collection schedule • Field procedures for sampling and	The learner demonstrates an understanding of concepts, underlying theories and principles in collecting samples for a rural production or horticulture monitoring program	The learner independently collects samples for a rural production or horticulture monitoring program based on required task.	**LO 1. Plan for collection of samples.** 1.1 Confirm purpose and scope of sample collection activity from discussion with supervisor or work instructions. 1.2 Read/hear sample collection schedule with supervisor. 1.3 Confirm sample collection schedule with supervisor. 1.4 Confirm sampling site location following enterprise guidelines. 1.5 Obtain approval for site access following enterprise guidelines.	**TLE_AFAHCT9-12CSR-IVa-77**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
preservation • OSHS requirement			1.6 Identify samples to be collected and preserved in conjunction with supervisor or by reference to enterprise guidelines. 1.7 Assess range of likely operating conditions, hazards and difficult/sensitive environments for impact on sampling and testing.	
• Preservation equipment and processes - Preserving equipment ▪ kick seines ▪ containers for holding and sorting samples, plastic buckets, blood/saliva - Sampling equipment ▪ hand-held magnifying glasses ▪ tweezers or forceps ▪ small vegetable brushes, wading boots ▪ rubber gloves, thermometer ▪ yardstick ▪ sample record and assessment form ▪ pencils and clipboard, relevant field guides. • Collect equipment and pre – operational methods - Electronic machines - probes - grabs - nets - dredges - plankton nets - water sample bottles - bailer still and video cameras, specialised machinery identification keys			**LO 2. Prepare equipment and resources.** 2.1 Source equipment required for sampling and preserving processes according to sampling procedures. 2.2 Check the availability and serviceability of equipment in accordance with enterprise procedures. 2.3 Collect data or record sheets/books. 2.4 Ready all equipment, data sheets and personnel to the sampling sites without injury or damage. 2.5 Move equipment, data sheets and personnel to the sampling sites without injury or damage.	**TLE_AFAHCT9-12CSR-IVb-78**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Protocol/guideline procedures in sampling activities • Procedures in preserving samples - Collect samples - Preserve samples - Prepare and package samples for transport to laboratory according to standards • Habitat assessment procedures • OSHS requirement			**LO 3. Carry out sampling and preserving procedures.** 3.1 Collect samples in accordance with sampling plan and enterprise procedures and industry protocols/guidelines. 3.2 Preserve samples in accordance with sampling standards and guidelines. 3.3 Prepare samples for external analysis for laboratory procedure in accordance with sampling schedule and laboratory standards. 3.4 Pack samples for external analysis for laboratory procedures in accordance with sampling schedule and laboratory standards. 3.5 Send samples for external analysis to laboratory in accordance with sampling schedule and laboratory standards. 3.6 Pack hazardous materials in accordance with legislative requirements. 3.7 Transport hazardous materials in accordance with legislative requirements. 3.8 Make observations including information on the surrounding area and environmental conditions in accordance with monitoring schedule. 3.9 Follow equipment operation and work practices according to OHS requirements. 3.10 Report collection outcomes including presentation of samples in accordance with enterprise guidelines. 3.11 Deliver collection outcomes including presentation of samples in accordance with enterprise guidelines.	**TLE_AFAHCT9-12CSR-IVc-d-79**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Sampling plans and procedures • Collecting techniques (record, forward, test and analyse) • Proper handling of collecting equipment according to enterprise procedures. • Environment act and legislation • PPE and OSHS requirements			**LO 4. Complete sample collection activities.** 4.1 Sanitize equipment and clothing in accordance with enterprise procedures. 4.2 Store equipment and clothing in accordance with enterprise procedures. 4.3 Repair damaged or malfunctioning equipment on site. 4.4 Send damaged or malfunctioning equipment to manufacturer or specialist. 4.5 Record accurately sampling results and observations on data sheets in accordance with enterprise procedures. 4.6 Forward sampling results and observations on data sheets in accordance with enterprise procedures. 4.7 Convey changes in field conditions and equipment to supervisor according to enterprise procedures.	**TLE_AFAHCT9-12CSR-IVe-80**
LESSON 20C: HANDLING BULK MATERIALS IN STORAGE AREA (HBM)				
• Types and selection of materials, tools and equipment appropriate in handling bulk materials in storage area • Routine check-up of tools and equipment • Manual handling procedures and techniques of materials • PPE and OSHS requirement • Common OSHS risk and hazards and its control • Interpersonal relations and communication between supervisor and workers	The learner demonstrates an understanding of concepts, underlying theories and principles in handling bulk materials in storage area.	The learner independently handles bulk materials in storage area based on required task.	**LO 1. Prepare to work in bulk materials storage area.** 1.1 Interpret work undertaken from the work program where necessary, and confirm with the management. 1.2 Assess OSHS risk and hazards. 1.3 Implement suitable controls for OSHS risk and hazards. 1.4 Use suitable personal protective clothing and equipment. 1.5 Maintain personal protective clothing and equipment. 1.6 Select tools and equipment that are suitable to the work to be undertaken. 1.7 Maintain tools and equipment used in	**TLE_AFAHCT9-12HBM-IVf-81**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			preparing the storage area. 1.8 Assess environmental implications of undertaking work in the bulk materials storage area. 1.9 Inform workers on what to do in case this type of emergency or things will happen/occur.	
• Client's sampling and classification requirements • Samples of bulk materials for testing: - Crop harvested (such as cereals, legumes, pulse crops, oilseeds and pasture seeds) - Animal feed or fertilizers. • Procedures in preparing sample bulk materials for testing: - PPE and OSHS requirement for testing - Prepare bulk material samples - Label bulk material samples - Packing of bulk material samples - Dispatching the samples			**LO 2. Sample bulk materials for testing.** 2.1 Take representative samples of bulk materials for testing in line with the requirements of the bulk materials storage program. 2.2 Undertake sampling safely, following the prescribed guidelines for the activity. 2.3 Prepare representative bulk materials samples for dispatch according to the guidelines of the organization and the analysing body. 2.4 Label representative bulk materials samples clearly for dispatch according to the guidelines of the organization and the analysing body. 2.5 Pack representative bulk materials samples for dispatch according to the guidelines of the organization and the analysing body. 2.6 Dispatch samples to the analysing body, according to the requirements of the bulk materials storage program.	**TLE_AFAHCT9-12HBM-IVg-82**
• Types and characteristics of bulk materials • Bulk materials storage program • Methods and procedures of moving bulk materials into and out of storage • Bulk segregation classification - Type - Variety - Quality			**LO 3. Move bulk materials into and out of storage.** 3.1 Identify correctly bulk materials for handling and storage from the written or verbal instructions. 3.2 Segregate bulk materials according to type, variety and quality characteristics according to the requirements of the organization as stated in the bulk materials storage program.	**TLE_AFAHCT9-12HBM-IVh-i-83**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Types of silo and handling equipment • PPE and OSHS requirements			3.3 Take measures to minimize insects and weeds infestation and contamination during the movement of the bulk materials. 3.4 Check bulk materials regularly to avoid insect infestation and contamination during movement according to enterprise requirements. 3.5 Clean any storage and handling equipment thoroughly after emptying according to the procedures of the organization and the nature of the equipment. 3.6 Move bulk materials into and out of storage according to the procedures of the organization, and following the prescribed OSHS procedures. 3.7 Select silo types and handling equipment for each bulk material type in relation to their storage characteristics and flow properties and according to the requirements of the bulk materials storage program. 3.8 Implement suitable measures to minimize the effect of desiccant dusts on the flow properties of bulk materials. 3.9 Maintain updated clear and accurate records when required by the bulk materials storage program.	
• Types of storage facility - Temporary storage - Permanent Storage • Typical signs of damage in storage facility • Maintenance schedule and program • Maintenance procedures for tools and equipment • PPE and OSHS requirements			**LO 4. Repair and maintain storage facility.** 4.1 Identify the need for repairs to the facility through observation or instruction. 4.2 Conduct maintenance and repairs according to the requirements of the organization and following the prescribed OSHS procedures and taking into account environmental considerations. 4.3 Document completed maintenance records and other appropriate information in	**TLE_AFAHCT9-12HBM-IVj-84**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			accordance with enterprise requirements. 4.4 Maintain workshop and work areas according to OSHS and enterprise requirements. 4.5 Report maintenance and repairs, damage, malfunctions or irregular performance in machinery, tools and equipment in line with organizational requirements. 4.6 Maintain tools and equipment in line with OSHS and organizational requirements.	
LESSON 20D: PREPARING GRAIN STORAGES (PGS)				
• Types and selection of tools, materials, and equipment appropriate in preparing bulk material storage area • Manual handling procedure and techniques in preparing bulk material storage area • PPE and OSHS requirement • Common OSHS hazards and its control	The learner demonstrates an understanding of concepts, underlying theories and principles in preparing grain storage.	The learner independently prepares grain storage based on required task.	**LO 1. Prepare to work in bulk material storage area.** 1.1 Understand work to be undertaken based on the work program if necessary, and confirm with supervisor. 1.2 Assess OSHS risk and hazards. 1.3 Implement suitable controls for OSHS risk and hazards. 1.4 Use suitable personal protective equipment. 1.5 Maintain personal protective equipment. 1.6 Select tools and equipment suitable for the work to be undertaken. 1.7 Assess outcomes on environmental implications of undertaking work in the bulk material storage area and take responsible actions.	**TLE_AFAHCT9-12PGS-IIIf-73**
• Procedures in preparing bulk materials in the storage area • Disposal of waste materials according to requirements left over treatments unused containers general debris discarded components • Maintenance of site in a clean and tidy condition • PPE and OSHS requirements			**LO 2. Prepare storage area.** 2.1 Clean storage site of weeds, dust and spillage according to organization requirements. 2.2 Dispose of refuse according to regulatory requirements. 2.3 Maintain site in a clean and tidy condition according to organization requirements. 2.4 Prepare storage site according to OSHS standards.	**TLE_AFAHCT9-12PGS-IIIg-74**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Procedures in preparing storage • Appropriate legislative requirements, manufacturers instructions and enterprise procedures instructions • Equipment and storage facility assessment • Procedure is establishing temporary storage according to OSHS requirements			**LO 3. Prepare storages.** 3.1 Prepare storages according to OSHS standards. 3.2 Clean all residues of bulk material storages according to organization requirements. 3.3 Check bulk material storages for structural safety, damage or deterioration, and repair or report as required according to organization requirements. 3.4 Erect temporary storages to meet the needs of the organization according to OSHS standards.	**TLE_AFAHCT9-12PGS-IIIh-75**
• Common bulk handling equipment - silo conveyors - elevators - chutes, and augers - tractors - front-end loaders, - two-way radio/ telephone, wall charts and other visual recording methods - warning devices, ventilation/aeration equipment • Pre-operational and safety checks, servicing and maintenance procedures for tools and equipment - Cleaning - Setting - Preparing for use • Potential hazards associated with the operation of basic tools and equipment			**LO 4. Prepare bulk material handling machinery.** 4.1 Clean bulk material handling machinery with contamination and residues according to organization requirements. 4.2 Set bulk material handling equipment according to organization requirements. 4.3 Prepare bulk material handling equipment for use according to manufacturers instructions and OSHS standards.	**TLE_AFAHCT9-12PGS-IIIi-76**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• General machine maintenance procedures • Machinery operating principles and operating methods • Machinery storage and protection methods • Provincial/municipal legislation, regulations and codes of practice with regard to workplace OSHS, and the use and control of machinery and equipment • 5'S and 3 R's • PPE and OSHS requirements			**LO 5. Complete maintenance operations.** 5.1 Record workplace information clearly and accurately in the prescribed format and at the time required by the organization. 5.2 Dispose of or recycle waste to minimise damage to the external environment. 5.3 Maintain tools and equipment according to organization work procedures.	**TLE_AFAHCT9-12PGS-IIIj-77**
LESSON 20E: COMPLYING WITH INDUSTRY QUALITY ASSURANCE REQUIREMENTS (CQA)				
• Elements of industry quality requirements • HACCP requirements • Record keeping practices	The learner demonstrates an understanding of concepts, underlying theories and principles in complying with industry quality assurance requirements.	The learner independently complies with industry quality assurance requirements based on enterprise requirements.	**LO 1. Implement quality assurance practices on food safety and quality, biosecurity and animal welfare.** 1.1 Determine elements of the industry quality assurance requirements. 1.2 Identify hazards to food safety and quality for work area according to enterprise guidelines and standard operating procedures. 1.3 Determine critical control points for work area according to workplace procedures. 1.4 Complete record keeping according to industry Quality Assurance requirements.	**TLE_AFAHCT9-12CQA-IVa-b-78**
• Standard operating procedures (SOP) relating to food safety quality, biosecurity, and animal welfare • Industry chart - Mission Statement - Work instructions			**LO 2. Implement standard operating procedures.** 2.1 Implement standard operating procedures in accordance with enterprise requirements. 2.2 Report non-conforming or defective product to supervisor according to	**TLE_AFAHCT9-12CQA-IVc-d-79**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
- Corrective Actions - Monitoring procedures • Policies and code of practice • Samples of non-conforming or defective products			enterprise/industry requirements. 2.3 Make corrective action in accordance with enterprise policy and procedures.	
• Enterprise recording and reporting procedures. • Common problems that affect quality from specification or work instruction • Interpersonal relationships and communication			**LO 3. Report problems that affect quality.** 3.1 Recognize potential or existing quality problems. 3.2 Identify instances of variation in quality from specifications or work instructions. 3.3 Report variation and potential problems to supervisor/manager according to enterprise guidelines.	**TLE_AFAHCT9-12CQA-IVd-e-80**
LESSON 20F: MAINTAINING AND MONITORING ENVIRONMENTAL WORK PRACTICES (MEW)				
• Legislation, codes and national standards on work place environmental practices • OSHS risks and hazards and its control	The learner demonstrates an understanding of concepts, underlying theories and principles in maintaining and monitoring environmental work practices.	The learner independently maintains and monitors environmental work practices based on enterprise requirements.	**LO 1. Maintain workplace environmental procedures.** 1.1 Follow workplace procedures and work instructions for integrated environmental work practices for own work area. 1.2 Convey to team members the workplace procedures and work instructions for integrated environmental work practices for own work area. 1.3 Follow relevant legislation, codes and national standards that impact on workplace environmental practices. 1.4 Convey to team members the relevant legislation, codes and national standards that impact on workplace environmental practices.	**TLE_AFAHCT9-12MEW-IVf-g-81**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Environmental risk and hazards • Types of hazards - Physical Hazards - Chemical Hazards - Biological Hazards • Food quality hazards environmental assessment - Observation - Recording - Reporting			**LO 2. Recognize and report on potential environmental threats.** 2.1 Identify and report existing and potential environmental risks and hazards to designated personnel. 2.2 Record accurately the location and extent of the potential environmental threat. 2.3 Complete reports on the potential environmental threat according to enterprise guidelines.	**TLE_AFAHCT9-12MEW-IVg-h-82**
• Environmental issues and concerns - sustainability reduction and disposal of waste - water quality - energy efficiency - biodiversity - habitat protection, conservation of natural resources - air quality - land contamination - noise - soil and salinity management fire management. • Workplace approaches to environmental practices • Prevent and minimize production of pollution • Improve workplace maintenance practices			**LO 3. Support continuous improvement of environmental work practices.** 3.1 Suggest improvements to support the development of improved environmental workplace practices according to gathered information. 3.2 Discuss environmental issues and their relationship to workplace practices in the workplace. 3.3 Respond positively and promptly the changes to workplace approaches and environmental practices in accordance with enterprise requirements. 3.4 Inform individuals/teams of the results of environmental improvements in the workplace. 3.5 Identify environmental training needs of the work team members. 3.6 Seek required environmental training of the work team members.	**TLE_AFAHCT9-12MEW-IVh-i-83**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Environmental records • Environmental data • Maintenance and inspection reports • Incident or accident reports complaints from the public			**LO 4. Maintain environmental Records.** 4.1 Maintain environmental records accurately and legibly in a form accessible for reporting purposes. 4.2 Store environmental records securely and accessible for reporting purposes. 4.3 Maintain internal and external reporting procedures.	**TLE_AFAHCT9-12MEW-IVj-84**
LESSON 20G: KEEPING RECORDS FOR A FARM BUSINESS (RFB)				
• Record keeping - Physical records ▪ property plan ▪ livestock • paddock treatments • Methods to identify sources of information • Principles of effective interpersonal skills - effective listening • Open questioning techniques - verbal and non-verbal communication skills, appropriate body language, the ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities	The learner demonstrates an understanding of concepts underlying theories and principles in keeping records for a farm business.	The learner independently keeps records for a farm business based on required task.	**LO 1. Prepare and store physical records.** 1.1 Determine physical records and inventories required for the organization in consultation with the management team. 1.2 Use time, resources and reliable methods for collecting information efficiently. 1.3 Use appropriate interpersonal skills to access relevant information from individuals and teams. 1.4 Organize information into a format suitable for analysis, interpretation and dissemination in accordance with organizational requirements. 1.5 Use business equipment/technology to maintain information in accordance with organizational andOSHSrequirements. 1.6 Update records in accordance with organizational requirements. 1.7 Store records in accordance with organizational requirements.	**TLE_AFAHCT9-12RFB-Ia-b-73**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Guidelines in the process of petty cash transaction • Principles and procedures for cash and non-cash handling • Principles of single entry accounting and cash flow statements			**LO 2. Process petty cash transactions.** 2.1 Check petty cash claims and vouchers for accuracy and authenticity prior to processing. 2.2 Process petty cash transactions in accordance with organizational requirements. 2.3 Record petty cash transactions in accordance with organizational requirements. 2.4 Balance petty cash book in accordance with organizational requirements	**TLE_AFAHCT9-12RFB-Ib-c-74**
• Maintaining cash book - Documents - Manual - Electronic • Filing of records accurately in accordance with organizational requirements • Basic calculations and balance accounts • Procedures in preparing cash flow statements and budgets			**LO 3. Establish and maintain a cash book in accordance with organizational requirements.** 3.1 Check cash receipts and payment books created, and documentation relating to financial transactions for validity prior to processing. 3.2 Reconcile cash book balances with bank and creditor statements. 3.3 Use cash book balances to complete legislative reporting requirements. 3.4 Prepare cash flow statements on the basis of summarised cash book entries.	**TLE_AFAHCT9-12RFB-Ic-d-75**
• Different creditors and debtors - Financial institutions - Goods and service suppliers - Rural merchants - Contractors - Professional advisors - Cooperatives • Procedures in processing invoice			**LO 4. Reconcile invoices for payment to creditors.** 4.1 Identify adjustments and errors in accordance with organizational requirements. 4.2 Report adjustments and errors in accordance with organizational requirements.	**TLE_AFAHCT9-12RFB-Id-e-76**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
and payments			4.3 Rectify adjustments and errors in accordance with organizational requirements. 4.4 Process invoices in accordance with organizational requirements. 4.5 Make payments in accordance with organizational requirements	
• Taxation and auditing requirements • Accurate records of all business assets - liabilities - income, expenses and entitlements to be analyzed by an accountant for compliance purposes. • Steps in filing of records and other documents in accordance with organizational requirements			**LO 5. Prepare invoices for debtors.** 5.1 Prepare invoices accurately and, if required, distribute to nominated persons for verification prior to despatch. 5.2 Make adjustments as required in accordance with organizational requirements. 5.3 Copy invoices and other related documents in accordance with organizational requirements for taxation and auditing purposes. 5.4 File invoices and other related documents in accordance with organizational requirements for taxation and auditing purposes.	**TLE_AFAHCT9-12RFB-Ie-77**
LESSON 20H: PERFORMING SPECIALIZED MACHINERY AND EQUIPMENT MAINTENANCE (PSM)				
• Classification of specialized machinery and equipment with primemovers - Internal combustion engines - Electric motors • Engine function principles. • Pre-operational and safety checks of specialized machinery and equipment • PPE and OSHS requirements	The learner demonstrates an understanding of concepts, underlying theories and principles in performing specialized machinery and equipment maintenance.	The learner independently performs specialized machinery and equipment maintenance based on required task.	**LO 1. Primemover checks.** 1.1 Carry out regular primemover checks on specialized machinery and equipment as specified in operator's manual. 1.2 Lubricate all relevant grease or lubricant points according to manufacturers' specifications. 1.3 Change oils and filters at intervals prescribed in operator's manual. 1.4 Check systems (i.e. cooling, electrical, lubrication, etc.) for deterioration and	**TLE_AFAHCT9-12PSM-If-g-78**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			defects acted upon in line with supervisor's instructions. 1.5 Assess OSHS risk and hazards in the workplace according to enterprise requirements. 1.6 Report OSHS risk and hazards in the workplace according to enterprise requirements.	
• Transmission and drive systems - Clutches - Gearbox - Direct drive and power shaft transmission - Torque converter - Final drives(includes - universal Joints, drive links) • Engine specifications in line with power requirements. • Engine equipment - oil/coolant levels - filters - oil - air - fuel - air conditioner			**LO 2. Carry out transmission checks.** 2.1 Check drive and steering clutches for operation and adjustment in line with operator's manual. 2.2 Check transmission oil levels in line with operator's manual. 2.3 Check tracks/wheels and undercarriage for oil leaks, wear and alignment. 2.4 Identify faulty seals or leaks and take corrective actions according to operator's instructions. 2.5 Check transmission regularly for belt alignment in case of transmission oil levels and in case of enclosed transmission.	**TLE_AFAHCT9-12PSM-Ig-h-79**
• Maintain machinery and equipment components - drive and steering clutch - transmission - truck wheel and under - carriage - engine equipment - machine operating component/wear component			**LO 3. Maintain components and attachments.** 3.1 Use suitable personal protective equipment according to OSHS requirements. 3.2 Maintain personal protective equipment according to OSHS requirements. 3.3 Check machine operational replacement of components for wear and condition. 3.4 Replace worn or unserviceable	**TLE_AFAHCT9-12PSM-Ih-i-80**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
▪ buckets ▪ blades ▪ cutter teeth and forks - moving operational components - elevator and loading chains ▪ cutters/knives ▪ belts • Tools and equipment used for maintenance • Spare parts and materials used in maintaining specialized machinery • PPE and OHS requirements			replacement components as part of daily routines. 3.5 Complete component inspection and replacement activities safely following enterprise and industry guidelines. 3.6 Check moving operational components for wear and condition and adjust to the tolerances specified in the operator's manual where applicable. 3.7 Maintain work areas according to enterprise and OSHS requirements.	
• Common faults and defects of a machine • Hazard identification and control • OSHS responsibilities of employees and employers • Maintenance procedures and workplace documentation			**LO 4. Record maintenance.** 4.1 Record identified faults and defects in machine record. 4.2 Document maintenance procedures including duplicate usages in workshop record. 4.3 Report service or repair requirements according to prescribed procedures. 4.4 Take possible action on service or repair requirements according to prescribed procedures.	**TLE_AFAHCT9-12PSM-Ij-81**
LESSON 20I: INSTALLING IRRIGATION SYSTEMS (IIS)				
• Tools, materials, equipment and machinery according to irrigation system design • Methods and techniques of irrigation system - mains pressure - low pressure - below ground - above ground	The learner demonstrates an understanding of concepts, underlying theories and principles in installing irrigation system.	The learner independently installs irrigation system based on required task.	**LO 1. Organize resources for installation work.** 1.1 Select materials, tools, equipment and machinery according to the irrigation system, design requirements, and enterprise work procedures. 1.2 Identify the construction site for the irrigation system and construction method according to the site and irrigation system	**TLE_AFAHCT9-12IIS-IIa-b-82**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
- spray systems - sripper and capillary systems. • Factors to consider in selecting irrigation site • Pre-operational check-up, safety and maintenance of parts and equipment • PPE and OSHS requirement			plans and enterprise work procedures. 1.3 Check parts and equipment delivered to site according to system drawings and specifications. 1.4 Carry out pre-operational and safety checks on tools, equipment and machinery according to manufacturer's specifications and enterprise work procedures. 1.5 Assess OSHS risk and hazards according to OHS requirements and standards. 1.6 Implement controls on OSHS risk and hazards according to OSHS requirements and standards. 1.7 Use suitable safety and personal protective equipment (PPE). 1.8 Maintain suitable safety and personal protective equipment (PPE). 1.9 Check water supply to ensure that it is compatible with system.	
• Task in preparing site and working area - disabling unused tools, equipment and machinery - storing neatly out of the way installation activities, safely storing materials on site - using signages and safety barriers during construction and removing them after construction activities - swiftly and efficiently removing and processing debris and waste • OSHS and PPE requirements			**LO 2. Set out and prepare site.** 2.1 Mark out irrigation lines consistent with the plan. 2.2 Construct trenches at the specified depth without damage to services, facilities, features and established plants. 2.3 Follow equipment operation and work practices according to enterprise and legislative OSHS requirements. 2.4 Observe regulations and legislation relevant to the situation. 2.5 Reflect work practices sustainable to horticulture principles. 2.6 Respond to local community requirements.	**TLE_AFAHCT9-12IIS-IIb-c-83**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Different examples of irrigation plans • Methods and techniques of irrigation • Components of an irrigation system • Characteristics and operation of joints, valves and sprinkler components • Water quality and water filtration techniques • Calculations for installing irrigation systems • Enterprise OSHS procedures			**LO 3. Install irrigation components.** 3.1 Interpret plan according to enterprise guidelines. 3.2 Supervise contractors to follow the specified work plan. 3.3 Assemble components according to the plan, joints and manufacturers specifications. 3.4 Test assembled components according to the plan, joints and manufacturer's specifications. 3.5 Fit fittings and valves to the requirements of the installation plan, and all joints are secured according to enterprise guidelines. 3.6 Adjust fittings and valves to the requirements of the installation plan, and all joints are secured according to enterprise guidelines. 3.7 Maintain a clean and safe work area while installation work is carried out. 3.8 Use tools appropriate to the task being undertaken according to guidelines 3.9 Employ safe working practices.	**TLE_AFAHCT9-12IIS-IIc-d-84**
• Behaviour of water on varying terrain and soil types • Soil water retention testing techniques • Water quality and water filtration techniques • Calculations for installing irrigation systems • 5 S and 3 R's on waste disposal • Maintenance of tools and equipment			**LO 4. Complete installation work.** 4.1 Finish earthworks off to plan specifications and enterprise work procedures. 4.2 Match the system configuration and capacity with the installation plan. 4.3 Restore/Dispose waste material from the site in an environmentally aware and safety manner according to enterprise work procedures. 4.4 Maintain tools, equipment and machinery according to enterprise work procedures.	**TLE_AFAHCT9-12IIS-IIe-85**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Operation of pumps and water flow rates • Common faults on irrigation system • Different testing equipment - Pressure gauge - Flow meters • Maintenance procedures and workplace documentation • Record keeping procedures			**LO 5. Commission irrigation system.** 5.1 Follow start-up sequence in accordance with operations manual. 5.2 Flush system as required. 5.3 Identify operating faults and take corrective actions according to the operations manual. 5.4 Calibrate testing and monitoring equipment according to manufacturer's specifications. 5.5 Record or report work outcomes to the supervisor according to enterprise work procedures.	**TLE_AFAHCT9-12IIS-IIe-86**

RESOURCES			METHODOLOGY	ASSESSMENT METHOD
TOOLS	**EQUIPMENT**	**MATERIALS**		
• Bolos • Broomstick • Calculator • Container • Cutting tools • Digging tools • Drying meter • Dulos • Fruit crate • Harvesting tools • Hat • Knapsack sprayer • Knife • Light hoe • Moisture meter • Personal protection equipment • Petri-dish • pH meter • Pick mattock • Picking knife • Plow • Plumbing tools • Post-Harvest treatment tools • Protective coat • Protective gadgets • Pruning sheers • Rake • Scissors • Seed bed • Seedling tray • Shovel • Sprinklers • Step ladder • Storage tools/cabinet • Transplanting tools • Trowel	• Booth/temporary shed • Cart (Kariton&paragus) • Coolroom • Comb-tooth harrow • Computer with record keeping software applications • Crates • Drying oven • Farm/ field • Greenhouse/nursery • Harvesting equipment • Irrigation system (sprinkler, mist/drip irrigation) • Mower (grass cutter) • Over head projector (OHP) • Portable chain saw • Post-Harvest treatment equipment • Power sprayer • Propagation equipment • Pump for irrigation • Rotavator • Service vehicle • Sorting /Grading equipment • Spike tooth harrow • Storage room • Surface irrigation system • Tractor/ Carabao • Typewriter	• Agri bags, plastic • Bamboo stick • Basket • Bond paper • Catching nets • Clips • Coconut dust • Compost • Fertilizers-various • First aide supplies/medicine • Flower inducer • Fungicides • Gloves • Growing media (garden soil, sewed sand, compost, soil, manure and sawdust/rice • Killing bottles • Marking pens • Masks • Material Safety Data Sheets • Mulching material • Hair nets • Packaging materials, assorted • Pail • Paper/bond • Pencil • Pens • Pesticides/Insecticides • Pieces of cloth • Plastic bag • Plumbing supplies • Pots • Propagation materials e.g. seeds spores, cuttings • Propagating media (garden soil, sawdust, sand, composed, coconut coir)	• Group discussion • Role playing • Brainstorming • Lecture / discussion • Demonstration • Direct observation • Self-paced / modular • Simulation / role playing • Case studies • Interaction • Field visit/tour • Practical exercise	• Written exam • Actual Designing • Actual Demonstration • Observation • Questioning • Demonstration with questioning • Direct observation and interview • Direct observation • Oral interview • Portfolio assessment

RESOURCES			METHODOLOGY	ASSESSMENT METHOD
TOOLS	**EQUIPMENT**	**MATERIALS**		
		• Rice hull • Rope, (small, med. Large) • Rubber band • Rubber boots • Rubber knots • Sacks • Sample of matured vegetable crops • Seed box • Seedlings, assorted • Seeds • Soil auger • String • Tetrazolium chemical • Transplanting supplies • Detergent, liquid and powder soap • Brush **Training Materials** • Brochures • Instructional supplies and materials • Visual aids • Reference materials/Books (technical information on horticultural and agronomic crops) • Reference manuals (first aide kit with reference manual) • Data (Data on result of soil analysis) • Procedural manuals • Soil samples analysis • Examples of farm standard operating procedures (SOPs)		

GLOSSARY

1.	Aflatoxin	-	Toxin produced by some strains of the fungi AspergilusFlavus and AspergilusParasticus; the most potent carcinogen yet discovered.
2.	Ambient condition	-	Ordinary room temperature and relative humidity.
3.	Ambient air	-	Surrounding air (atmospheric).
4.	Ambient storage	-	Treatment or practice extending post harvest life of harvested commodity beyond that of similar commodity held under ambient conditions without treatment.
5.	Airflow rate	-	Amount of air passing through an obstruction per unit of time.
6.	ACIAR	-	Australian Center for International Agricultural Research
7.	AFHB	-	ASEAN Food Handling Bureau
8.	BPI	-	Bureau of Plant Industry
9.	BPRE	-	Bureau of Post Harvest Research & Extension
10.	Curing	-	The process of toughening and self-healing of bruises and skinned areas in root and tubes crops or the rapid closing of the neck of bulb crops under favourable conditions
11.	Driller	-	A machine for sowing in furrows
12.	Drip Irrigation	-	Application of water through small tubes and orifices or emitters which discharge small quantity of water to the base of the plant
13.	Dry-bulb temperature	-	Temperature of air indicated by a standard temperature
14.	Equilibrium moisture content	-	The moisture content at which moisture in a product is in equilibrium with the surrounding air. The product does not gain or loss moisture.
15.	Fogging	-	To cover or envelope with fog
16.	Foliar Fertilizer	-	Fertilizer formulation containing nitrogen, phosphorous and potassium plus selected micronutrient elements such as (Ca, Mg, Mn, Fe, Zn, Cl, B, Cu, S) applied by spraying on the leaves
17.	Fumigant	-	Chemical compound which acts in the gaseous state to destroy insects and their larvae.
18.	Fumigation	-	The process of treating stored products with insecticides/pesticides and the like in fumes or vapor form.
19.	Furrow Irrigation	-	A method of supplying water through a canal system wherein water flows down or across the slope of the field
20.	Furrowing	-	Final step in land preparation by making furrows or beds for planting
21.	GATT	-	General Agreement on Tariff and Trade
22.	Grading	-	The process of classifying into groups according to a set of recognized criteria of quality and size, each group bearing an accepted name and size grouping.
23.	Growing Medium	-	Mixture of different materials such as; soil, sand, compost, coir dust, rice hull, perlite, peat, etc. for growing seedlings
24.	HACCP	-	Hazard Analysis Critical Control Points
25.	Hardening	-	The process of gradually withholding water and exposing to direct sunlight to prevent seedlings from transplanting stress/shock
26.	Harrowing	-	Breaking of large soil clods that are caused by plowing
27.	Hilling-Up	-	The process of covering the applied fertilizer material by raising the soil towards the base of the plant to further stabilize its stand for better plant growth.
28.	Hygrometer	-	An instrument that measures humidity.
29.	Insect pest	-	A destructive or harmful insect.
30.	Irrigation	-	Method of supplying water to sustain plant growth
31.	Off-Baring	-	Process of cultivating the soil away from the base of the plants

32.	Pricking-Off	-	The methods of transferring of seedling to avoid overcrowding
33.	Larvae	-	The first stage of the life cycle of insects after leaving the egg.
34.	Manometer	-	Instrument that measures air pressure.
35.	Maturity	-	The quality or state of ripeness, or of being fully developed grain.
36.	Maturity index	-	The signs or indications that a commodity is mature and is ready to be harvested.
37.	Moisture content	-	The conventional index used to determine whether the seed is dry enough for safe storage or for milling usually expressed in percent (% M.C.).
38.	Molds	-	A superficial often woolly growth produced on various forms of organic matter, especially when damp or decaying.
39.	MSDS	-	Material Safety Data Sheet
40.	NFA	-	National Food Authority
41.	NSIC	-	National Seed Industry Council
42.	Packaging	-	The technology or process to ensure adequate protection and safe delivery of a product from the producers to the ultimate consumers.
43.	Packing	-	Act of putting commodities in a container.
44.	Packinghouse	-	A place where the preparatory steps for storage or marketing are done.
45.	Pallet	-	Low portable platform made of wood or metal or in combination to facilitate handling, storage or transport of materials as a unit load using forklift.
46.	Perishables	-	Food crops for which value and/or quality is maintained over a short period of time after harvest. These include fruits, vegetables, flowers, young coconut, nursery stocks and some staple root crops, such as: sweet potato, cassava and yam.
47.	Post-harvest disease	-	A disease observed after harvest regardless of when or where initial infestation took place.
48.	Post- harvest handling	-	A specific term used for the movement of commodities and operations through which a commodity undergoes from harvest to possession of the fixed consumer, includes the technological aspects of marketing and distribution.
49.	Post- harvest infection	-	Plant infection that takes place after harvest.
50.	Post- harvest life	-	The period of time during which a commodity is still acceptable for its intended purpose.
51.	Pre- cooling	-	The rapid cooling (48 hours or less) of a commodity to a desired transit or storage temperature soon after harvest before it is stored or moved in transit.
52.	Pupa	-	An intermediate stage of an insect that preys on one or more plants and animals that man wishes to preserve for his own use.
53.	Refrigeration	-	Process of removing heat from a compartment or substance so that temperature is lowered and then maintained at a desirable level, usually refers to refrigeration by mechanical means.
54.	Relative humidity	-	Actual vapor pressure of the air relative to saturation.
55.	Respiration	-	A biological process by which organic materials are broken down to simpler forms accompanied by the release of energy and heat.
56.	Ripening	-	The state of development of a fruit when it becomes soft and edible applies strictly to climacteric type fruit.
57.	Rodents	-	Refers to rats and mice which destroy grains and other stored products.
58.	Senescence	-	The final phase in the life of an organ in which a series of normally irreversible events are initiated leading to cellular breakdown or death of the organ.
59.	Side-Dress Fertilizer	-	Additional amount of any fertilizer materials applied at the onset of flowering to complete the nutritional requirement of the crop
60.	Sprinkler Irrigation	-	A mechanical method of supplying water over the standing crop by means of a nozzle which is rotated by water pressure
61.	Synthetic Mulch	-	A mulching materials made either of polyethylene or non-woven fabric

62.	Sorting	-	The process of classifying into groups designated by the person classifying crops or commodities the produce either according to set criteria.
63.	Standard	-	Set of criteria and specifications of quality determining the grades, described as product characteristics; such as: maturity, color, cleanliness, shape, free from decay and blemishes and uniformity of size.
64.	Storage	-	The process of keeping horticultural crops in a structure designed to protect the stored products from inclement weather and pests for a short or long period of time to await processing or movement to other location.
65.	Storage life	-	The longest time produce can be kept in a sound marketable condition.
66.	Tachometer	-	An instrument that measures revolutions per minute
67.	Tillage	-	The mechanical manipulation of the soil
68.	Transplants	-	Vegetable seedlings produced for transplanting
69.	Trellis	-	A support structure for vinyl crops and can either be T, I, Y, A shaped
70.	Velometer	-	An instrument that measures velocity of air flow
71.	Waxing	-	Application of a thin film of surface coating to fruits and vegetables.
72.	Wet-bulb temperature	-	The temperature of moist air indicated by a thermometer whose bulb is covered with a moist with which the air flow passing over has a velocity of 15 ft per second.

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI-FISHERY ARTS – HORTICULTURE NC III
(640 hours)

CODE BOOK LEGEND

Sample: **TLE_AFAHCT9-12LWC-Ia-1**

LEGEND		SAMPLE	
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_ Agri-Fishery Arts Horticulture NC III	**TLE_ AFA HCT**
	Grade Level	9 to 12	**9-12**
Uppercase Letter/s	Domain/ Content/ Component/ Topic	Leading Work Place Communication	**LWC**
			-
Roman Numeral **Zero if no specific Quarter*	Quarter	First Quarter	**I**
Lower case letter/s **Put an en-dash (-) in between letters to indicate more than a specific week*	Week	Week one	**a**
			-
Arabic Number	Competency	Lead workplace communication.	**1**

DOMAIN / COMPONENT	CODE
Leading Work Place Communication	LWC
Leading Small Team	LST
Developing and Practicing Negotiation Skills	PNS
Solving Prolems Related to Work Activities	PRW
Using Mathematical Concepts and Techniques	MCT
Using Relevant Technologies	URT
Applying Safety Measures in Farm Operations	SMF
Using Farm Tools and Equipment	TFE
Performing Estimation and Basic Calculation	EBC
Preparing Land for Horticultural Crop Production	LHC
Implementing a Post-Harvest Program	IPH
Implementing a Plant Nutrition Program	IPN
Controling Weeds	CTW
Preparing and Applying Chemicals	PAC
Establishing Horticultural Crops	EHC
Coordinating a Horticultural Crop Maintenance Program	HCM
Coordinating Horticultural Crop Harvesting	HCH
Undertaking Propagation Activities	UPA
Undertaking Field Budding and Grafting	FBG
Following Site Quarantine Procedures	FSQ
Collecting Samples for a Rural Production or Horticulture Program	CSR
Handling Bulk Materials in Storage Area	HBM
Preparing Grain Storages	PGS
Complying with Industry Quality Assurance Requirements	CQA
Maintaining and Monitoring Environmental Work Practices	MEW
Keeping Records for a Farm Business	RFB
Performing Specialised Machinery and Equipment Maintenance	PSM
Installing Irrigation System	IIS

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI-FISHERY ARTS – HORTICULTURE NC III
(640 hours)

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 to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL - TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
AGRI-FISHERY ARTS – HORTICULTURE NC III
(640 hours)

SAMPLE AGRICULTURE AND FISHERY ARTS CURRICULUM MAP (updated as of May 2016)**

GRADE 7/8 (EXPLORATORY)	GRADES 9-12		
EXPLORATORY	Agricultural Crops Production (NC I) 4 sems		
	Agricultural Crops Production (NC II)+ updated based on TESDA Training Regulations published on December 28, 2013		8 sems
	*Agricultural Crops Production (NC III)		8 sems
	Landscape Installation and Maintenance (NC II) 4 sems	Organic Agriculture (NC II)	4 sems
	Pest Management (NC II) 4 sems	Rice Machinery Operation (NC II)	4 sems
	Animal Production (Swine) (NC II)+ updated based on TESDA Training Regulations published on December 28, 2013 4 sems	*Artificial Insemination: Swine (NC II) 2 sems	*Slaughtering Operations (Hog/Swine/Pig) (NC II) 2 sems
	Animal Production (Large Ruminants) (NC II)+ updated based on TESDA Training Regulations published on December 28, 2013 4 sems	*Artificial Insemination: Large Ruminants (NC II) 2 sems	Fish Wharf Operation 2 sems
	Animal Production (Poultry-Chicken) (NC II)+ updated based on TESDA Training Regulations published on December 28, 2013 4 sems	*Animal Health Care Management NC III	4 sems
	Rubber Production (NC II) 4 sems	Rubber Processing (NC II)	4 sems
	*Horticulture (NC III)		8 sems
	Food Processing (NC II)		8 sems
	Fish Capture (NC II)		8 sems
	Aquaculture (NC II)		8 sems
	Fish-Products Packaging (NC II) 4 sems	Fishing Gear Repair and Maintenance (NC III)	4 sems

* Please note that these subjects have pre-requisites mentioned in the CG.
\+ CG updated based on new Training Regulations of TESDA.
Other specializations with no prerequisites may be taken up during these semesters.

****This is just a sample. Schools make their own curriculum maps considering the specializations to be offered. Subjects may be taken up at any point during Grades 9-12.**

Reference:

Technical Education and Skills Development Authority-Qualification Standards Office. *Training Regulations for Horticulture NC III*. Taguig City, Philippines: TESDA, 2006.