COMPETENCY STANDARDS

AGRICULTURAL PRODUCT FOOD INSPECTION LEVEL IV

AGRICULTURE, FORESTRY AND FISHERY SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
TESDA Complex East Service Road, South Luzon Expressway (SLEX),
Fort Bonifacio, Taguig City

Technical Education and Skills Development Act of 1994
(Republic Act No. 7796)

Section 22, “Establishment and Administration of the National Trade Skills Standards” of the RA 7796 known as the TESDA Act mandates TESDA to establish national occupational skill standards. The Authority shall develop and implement a certification and accreditation program in which private industry group and trade associations are accredited to conduct approved trade tests, and the local government units to promote such trade testing activities in their respective areas in accordance with the guidelines to be set by the Authority.

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AGRICULTURAL PRODUCT FOOD INSPECTION LEVEL IV

Section 1 AGRICULTURAL PRODUCT FOOD INSPECTION LEVEL IV QUALIFICATION

The **AGRICULTURAL PRODUCT FOOD INSPECTION LEVEL IV** Qualification consists of competencies that a person must achieve to inspect agricultural food product. It includes establishing sampling plan, formulating laboratory solutions, and carrying out microbiological and chemical tests.

The units of competency comprising this qualification include the following:

CODE NO.	BASIC COMPETENCIES
500311401	Utilize specialized communication skills
500311402	Develop and lead teams
500311403	Perform higher-order thinking processes and apply techniques in the workplace
500311404	Contribute to the practice of social justice in the workplace
500311405	Manage innovative work instructions
500311406	Manage and evaluate usage of information
500311407	Lead in improvement of Occupational Safety and Health (OSH) programs, policies and procedures
500311408	Lead towards improvement of environment work programs, policies and procedures
500311409	Sustain entrepreneurial skills

CODE NO.	COMMON COMPETENCIES
AFF321201	Apply safety measures in farm operations
AFF321203	Perform estimation and basic calculation
HCS421201	Provide quality customer service
HCS315202	Comply with quality and ethical standards

CODE NO.	CORE COMPETENCIES
CS-AFF314301	Establish sampling plan
CS-AFF314302	Formulate laboratory solutions
CS-AFF314303	Carry-out microbiological and chemical tests

A person who has achieved this Qualification is competent to be:

- Agricultural Product Food Inspector

SECTION 2 COMPETENCY STANDARDS

These guidelines are set to provide the Technical Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for **AGRICULTURAL PRODUCT FOOD INSPECTION LEVEL IV**.

BASIC COMPETENCIES

UNIT OF COMPETENCY : **UTILIZE SPECIALIZED COMMUNICATION SKILLS**

UNIT CODE : **500311401**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to use specialized communication skills to meet specific needs of internal and external clients, conduct interviews, facilitate discussion with groups, and contribute to the development of communication strategies.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Meet common and specific communication needs of clients and colleagues	1.1 Specific communication needs of clients and colleagues are identified and met. 1.2 Different approaches are used to meet communication needs of clients and colleagues. 1.3 Conflict is addressed promptly in a manner which does not compromise the organization.	1.1 Communication processes 1.2 Dynamics of groups and different styles of group leadership 1.3 Communication skills relevant to client groups 1.4 Flexibility in communication	1.1 Full range of communication techniques including: 1.1.1 Effective communication process 1.1.2 Active listening 1.1.3 Giving/ receiving feedback 1.1.4 Interpretation of information 1.1.5 Role boundaries setting 1.1.6 Negotiation 1.1.7 Establishing empathy 1.1.8 Conduct seminars 1.1.9 Public speaking 1.2 Communication skills required to fulfill job roles as

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
			specified by the organization
2. Contribute to the development of communication strategies	2.1 ***Strategies*** for internal and external dissemination of information are developed, promoted, implemented and reviewed as required. 2.2 Channels of communication are established and reviewed regularly. 2.3 Coaching in effective communication is provided. 2.4 Work related network and relationship are maintained. 2.5 Negotiation and conflict resolution strategies are used where required. 2.6 Communication with clients and colleagues is performed appropriate to individual needs and organizational objectives.	2.1 Communication process 2.2 Dynamics of groups and different styles of group leadership 2.3 Openness and flexibility in communication 2.4 Communication skills relevant to client groups	2.1 Full range of communication techniques including: 2.1.1 Effective communication process 2.1.2 Active listening 2.1.3 Giving / Receiving feedback 2.1.4 Interpreting information 2.1.5 Role boundaries setting 2.1.6 Negotiating 2.1.7 Establishing empathy 2.1.8 Communication skills required to fulfill job roles as specified by the organization 2.2 Communication skills required to fulfill job roles as specified by the organization
3. Deliver a technical presentation	3.1 Presentation is delivered clearly, sequential and delivered within allotted time. 3.2 Utilize appropriate media to enhance presentation. 3.3 Differences in views/opinions are respected. 3.4 Questions during fora are responded	3.1 Communication process 3.2 Dynamics of groups and different styles of group leadership 3.3 Openness and flexibility in communication 3.4 Communication skills relevant to client groups	3.1 Full range of communication techniques including: 3.1.1 Effective communication process 3.1.2 Active listening 3.1.3 Giving/receiving feedback 3.1.4 Interpretation of information

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	in a manner consistent with organizational standard.		3.1.5 Role boundaries setting 3.1.6 Negotiation 3.1.7 Establishing empathy 3.1.8 Openness and flexibility in communication 3.1.9 Communication skills required to fulfill job roles as specified by the organization
4. Represent the organization	4.1 When participating in internal or external forums, presentation is relevant, appropriately researched and presented in a manner to promote the organization. 4.2 Presentation is clear and sequential and delivered within a predetermined time. 4.3 Utilize appropriate media to enhance presentation. 4.4 Differences in views are respected. 4.5 Written communication is consistent with organizational standards. 4.6 Inquiries are responded in a manner consistent with organizational standard. 4.7 Consolidate ideas and suggestions. 4.8 Generalize and summarize all ideas and suggestions.	4.1 Communication process 4.2 Dynamics of groups and different styles of group leadership 4.3 Openness and flexibility in communication 4.4 Communication skills relevant to client groups	4.1 Full range of communication techniques including: 4.1.1 Effective communication process 4.1.2 Active listening 4.1.3 Giving/ receiving feedback 4.1.4 Interpretation of information 4.1.5 Role boundaries setting 4.1.6 Negotiation 4.1.7 Establishing empathy 4.1.8 Openness and flexibility in communication 4.2 Communication skills required to fulfill job roles as specified by the organization

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
5. Facilitate group discussion	5.1 Mechanisms which enhance ***effective group interaction*** is defined and implemented. 5.2 Strategies which encourage all group members to participate are used routinely. 5.3 Objectives and agenda for meetings and discussions are routinely set and followed. 5.4 Relevant information is provided to group to facilitate outcomes. 5.5 Evaluation of group communication strategies is undertaken to promote participation of all parties. 5.6 Specific communication needs of individuals are identified and addressed.	5.1 Communication process 5.2 Dynamics of groups and different styles of group leadership 5.3 Openness and flexibility in communication 5.4 Communication skills relevant to client groups	5.1 Full range of communication techniques including: 5.1.1 Effective communication process 5.1.2 Active listening 5.1.3Giving/receiving feedback 5.1.4 Interpretation of information 5.1.5 Role boundaries setting 5.1.6 Negotiation 5.1.7 Establishing empathy 5.1.8 Openness and flexibility in communication 5.2 Communication skills required to fulfill job roles as specified by the organization
6. Conduct interview	6.1 A range of appropriate communication strategies are employed in ***interview situations.*** 6.2 Records of interviews are made and maintained in accordance with organizational procedures. 6.3 Effective questioning, listening and	6.1 Communication process 6.2 Dynamics of groups and different styles of group leadership 6.3 Effective questioning techniques 6.4 Communication skills relevant to client groups	6.1 Full range of communication techniques including: 6.1.1 Effective communication process 6.1.2 Active listening 6.1.3 Giving/ receiving feedback 6.1.4 Interpretation of information 6.1.5 Role boundaries setting 6.1.6 Negotiation

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	nonverbal communication techniques are used to ensure that required message is communicated.		6.1.7 Establishing empathy 6.2 Effective clarifying and probing techniques (questioning skills) 6.3 Communication skills required to fulfill job roles as specified by the organization

RANGE OF VARIABLES

VARIABLE	RANGE
1. Strategies	May include but not limited to: 1.1 Recognizing own limitations 1.2 Referral to specialists 1.3 Utilizing techniques and aids 1.4 Providing written drafts 1.5 Verbal and non verbal communication
2. Effective group interaction	May include but not limited to: 2.1 Identifying and evaluating what is occurring within an interaction in a non judgmental way 2.1 Using active listening 2.1 Making decision about appropriate words, behavior 2.1 Putting together response which is culturally appropriate 2.1 Expressing an individual perspective 2.1 Expressing own philosophy, ideology and background and exploring impact with relevance to communication 2.1 Openness and flexibility in communication
3. Types of Interview	May include: 3.1 Related to staff issues 3.2 Routine 3.3 Confidential 3.4 Evidential 3.5 Non disclosure 3.6 Disclosure
4. Interview situations	May include but not limited to: 4.1 Establish rapport 4.2 Elicit facts and information 4.3 Facilitate resolution of issues 4.4 Develop action plans 4.5 Diffuse potentially difficult situation

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate**: 1.1 Demonstrated effective communication skills with clients accessing service and work colleagues 1.2 Adopted relevant communication techniques and strategies to meet client particular needs and difficulties
2. Resource Implications	**The following resources should be provided:** 2.1 Access to appropriate workplace where assessment can take place
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Case Study 3.2 Interview 3.3 Portfolio 3.4 Written Test 3.5 Role Play
4. Context for Assessment	4.1 This unit should be assessed on the job through simulation

UNIT OF COMPETENCY : DEVELOP AND LEAD TEAMS

UNIT CODE : 500311402

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes required to determine individual and team development needs and facilitate the development of the workgroup.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Foster individual growth	1.1 ***Learning and development needs*** of team members are systematically identified in line with ***organizational requirements.*** 1.2 Development plan to meet individual needs is collaboratively developed and implemented. 1.3 Individuals are encouraged to self - evaluate performance and identify areas for improvement. 1.4 ***Feedback on performance*** of team members is collected from relevant sources and compared with established team learning process.	1.1 Effective workplace communication, coaching and mentoring principles 1.2 Feedback principles and procedures 1.3 Working interdependently: strategies and techniques 1.4 Leadership Concepts: • Types of Decisions Teams Make • Team Responsibilities • Problems That Affect Teams • Building Strong Team Communication • Expressing Yourself on a Team • Team Problem Solving	1.1 Ability to read and understand a variety of texts, prepare general information and documents according to target audience; spell with accuracy; use grammar and punctuation effective relationships and conflict management 1.2 Coaching and mentoring skills to provide support to colleagues 1.3 Communication skills including receiving feedback and reporting, maintaining effective relationships and conflict management 1.4 Ability to relate to people from a range of social, cultural, physical and mental backgrounds 1.5 Planning skills to organize

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
			required resources and equipment to meet learning needs 1.6 Reporting skills to organize information; assess information for relevance and accuracy; identify and elaborate on learning outcomes 1.7 Facilitation skills to conduct small group training sessions
2. Foster individual and team growth	2.1 Learning and development program goals and objectives are identified to match the specific knowledge and skills requirements of competency standards. 2.2 ***Learning delivery methods*** are appropriate to the learning goals, the learning style of participants and availability of equipment and resources. 2.3 Workplace learning opportunities and coaching/ mentoring assistance are provided to facilitate individual and team achievement of competencies.	2.1 Advanced coaching and mentoring techniques 2.2 Performance evaluation concepts 2.3 Training and development techniques	2.1 Instructional planning and delivery skills 2.2 Monitoring and evaluating 2.3 Mentoring and coaching skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.4 Resources and timelines required for learning activities are identified and approved in accordance with organizational requirements.		
3. Monitor and evaluate workplace learning	3.1 Feedback from individuals or teams is used to identify and implement improvements in future learning arrangements. 3.2 Outcomes and performance of individuals/teams are assessed and recorded to determine the effectiveness of development programs and the extent of additional support. 3.3 Modifications to learning plans are negotiated to improve the efficiency and effectiveness of learning. 3.4 Records and reports of competency are maintained within organizational requirement.	3.1 Types and levels of learning evaluation 3.2 Learning styles and strategies 3.3 Training and development approaches	3.1 Instructional planning and delivery skills 3.2 Monitoring and evaluating 3.3 Mentoring and coaching skills
4. Develop team commitment and cooperation	4.1 Open communication processes to obtain and share information is used by team. 4.2 Decisions are reached by the team in accordance	4.1 Career development for group members 4.2 Principles of team commitment and cooperation 4.3 Team dynamics and performance	4.1 Instructional planning and delivery skills 4.2 Monitoring and evaluating 4.3 Mentoring and coaching skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	with its agreed roles and responsibilities. 4.3 Mutual concern and camaraderie are developed in the team. 4.4 Career planning for each member are monitored.		
5. Facilitate accomplishment of team goals	5.1 Team members actively participated in team activities and communication processes. 5.2 Teams members developed individual and joint responsibility for their actions. 5.3 Collaborative efforts are sustained to attain organizational goals.	5.1 Group Development Process and Principles as applied in the workplace 5.2 Principles of organizational development 5.3 Collaboration principles and procedures	5.1 Instructional planning and delivery skills 5.2 Monitoring and evaluating 5.3 Mentoring and coaching skills 5.4 Leading and Organization

RANGE OF VARIABLES

VARIABLE	RANGE
1. Learning and development needs	May include but not limited to: 1.1 Coaching, mentoring and/or supervision 1.2 Formal/informal learning program 1.3 Internal/external training provision 1.4 Work experience/exchange/opportunities 1.5 Personal study 1.6 Career planning/development 1.7 Performance appraisals 1.8 Workplace skills assessment 1.9 Recognition of prior learning 1.10 Job design and enrichment
2. Organizational Requirements	May include but not limited to: 2.1 Quality assurance and/or procedures manuals 2.2 Goals, objectives, plans, systems and processes 2.3 Legal and organizational policy/guidelines and requirements 2.4 Safety policies, procedures and programs 2.5 Confidentiality and security requirements 2.6 Business and performance plans 2.7 Ethical standards 2.8 Quality and continuous improvement processes and standards
3. Feedback on Performance	May include but not limited to: 3.1 Formal/informal performance appraisals 3.2 Obtaining feedback from supervisors and colleagues 3.3 Obtaining feedback from clients 3.4 Personal and reflective behavior strategies 3.5 Routine and organizational methods for monitoring service delivery
4. Learning delivery Methods	May include but not limited to: 4.1 On the job coaching or mentoring 4.2 Problem solving 4.3 Presentation/demonstration 4.4 Formal course participation 4.5 Work experience 4.6 Involvement in professional networks 4.7 Conference and seminar attendance 4.8 Induction

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Identified and implemented learning opportunities for others 1.2 Gave and received feedback constructively 1.3 Facilitated participation of individuals in the work of the team 1.4 Negotiated learning plans to improve the effectiveness of learning 1.5 Prepared learning plans to match skill needs 1.6 Accessed and designated learning opportunities
2. Resource Implications	**The following resources should be provided:** 2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Observation of work activities of the individual member in relation to the work activities of the group 3.2 Observation of simulation and or role play involving the participation of individual member to the attainment of organizational goal 3.3 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork
4. Context for Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group

UNIT OF COMPETENCY : PERFORM HIGHER-ORDER THINKING PROCESSES AND APPLY TECHNIQUES IN THE WORKPLACE

UNIT CODE : 500311403

UNIT DESCRIPTOR : This unit of covers the knowledge, skills and attitudes required to use fundamental critical thinking skills in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Evaluate effectiveness and efficiency of the workplace systems, processes and procedures.	1.1 ***Effectiveness and efficiency*** of workplace standards and procedures are examined. 1.2 Usage of inquiry and dialogue to communicate evaluation measures and results are implemented. 1.3 Evaluation reports are prepared and communicated to team members.	1.1 Systems, standards, procedures and protocols in the workplace. 1.2 Different methods of critical and appreciative inquiry and their relevance to different situations 1.3 Techniques to assist in forming the habit of asking questions and taking responsibility for answers. 1.4 Why questions are important and the benefits of asking good questions for individuals, businesses and communities (the importance of critical thinking).	1.1 Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information). 1.2 Communicating to active listening and asking questions to others in a constructive way. 1.3 Using critical thinking pathway to formulating and asking relevant questions and coming up with appropriate answers. 1.4 Performing assimilation and accommodation skills to interpret and distil key information of relevance to a given situation. 1.5 Assessing and measuring the extent of effectiveness and efficiency of the systems,

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
			processes and procedures in the workplace.
2. Foster the habit of critical inquiry and curiosity in the workplace.	2.1 Issues and situations are reflected on and wondered about. 2.2 Issues and problems in the workplace particularly in the policies, procedures and protocols are discussed and evaluated between and among teams. 2.3 Evaluation of efficiency and effectiveness of workplace policies, procedures and protocols are documented, communicated and agreed upon between and among teams. 2.4 Growth mindset and positive relationship and communication is applied in the context of curiosity and critical inquiry in the workplace.	2.1 Different methods of critical and appreciative inquiry and their relevance to different situations. 2.2 Techniques to assist in forming the habit of asking questions and taking responsibility for answers. 2.3 Why questions are important and the benefits of asking good questions for individuals, businesses and communities (the importance of critical thinking). 2.4 Growth mindset and positive communication and relationship strategies and techniques.	2.1 Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information). 2.2 Communicating to active listening and asking questions to others in a constructive way. 2.3 Using critical thinking pathway to formulating and asking relevant questions and coming up with appropriate answers. 2.4 Performing assimilation and accommodation skills to interpret and distil key information of relevance to a given situation. 2.5 Assessing and measuring the extent of effectiveness and efficiency of the systems, processes and procedures in the workplace. 2.6 Communicating insights on workplace effectiveness and efficiency.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Develop practical action plans for improving workplace conditions.	3.1 Evaluation of efficiency and effectiveness of workplace policies, procedures and protocols are documented, communicated to stakeholders. 3.2 Practical action plans in improving workplace conditions are formulated, presented and negotiated with stakeholders. 3.3 Proposed changes and directions are inquired, processed and negotiated between and among teams, and stakeholders as well of the organization. 3.4 Commitment to continuous improvement and change is highlighted. 3.5 Passion and dedication for changing and adapting to the demands of the 21st century workplace are considered.	3.1 Different methods of critical and appreciative inquiry and their relevance to different situations. 3.2 Techniques to assist in forming the habit of asking questions and taking responsibility for answers. 3.3 Why questions are important and the benefits of asking good questions for individuals, businesses and communities (the importance of critical thinking). 3.4 Growth mindset and positive communication and relationship strategies and techniques. 3.5 Creative negotiation skills. 3.6 Change management and continuous improvement concepts.	3.1 Using range of analytical techniques (e.g., planning, attention, simultaneous and successive processing of information). 3.2 Communicating to active listening and asking questions to others in a constructive way. 3.3 Using critical thinking pathway to formulating and asking relevant questions and coming up with appropriate answers. 3.4 Performing assimilation and accommodation skills to interpret and distil key information of relevance to a given situation. 3.5 Assessing and measuring the extent of effectiveness and efficiency of the systems, processes and procedures in the workplace. 3.6 Communicating practical insights on improving workplace conditions.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Effectiveness and efficiency	May include but not limited to: 1.1 Developing a more efficient way of doing something 1.2 Developing a new idea 1.3 Developing and improving products and services 1.4 Enhancing skills and career opportunities 1.5 Enhancing the physical environment 1.6 Financial benefit 1.7 Greater personal satisfaction 1.8 Improving interpersonal relationships 1.9 Evaluating overall workplace conditions
2. Curiosity and critical inquiry	May include but not limited to: 2.1 Accuracy 2.2 Breadth 2.3 Clarity 2.4 Depth 2.5 Emotion 2.6 Fairness 2.7 Logic 2.8 Meaning 2.9 Planning 2.10 Attention 2.11 Precision 2.12 Relevance 2.13 Significance 2.14 Social engagement 2.15 Society 2.16 Style 2.17 Growth mindset 2.18 Positive communication 2.19 Positive negotiation 2.20 Workplace conditions 2.21 Appreciative inquiry methods
3. Practical action plans	May include but not limited to: 3.1 Insights on continuous improvement 3.2 Creative strategies and techniques for becoming better at work and real life 3.3 Career plans 3.4 Challenging workplace policies, procedures and protocols 3.5 Specifying plans for change and adapting to the demands of the contemporary workforce 3.6 Challenges in negotiating with stakeholders and teams 3.7 Change management, innovation and knowledge creation 3.8 Contractual agreements 3.9 Extreme time pressure or non-negotiable deadlines

VARIABLE	RANGE
	3.10 Financial limitations 3.11 Procedures determined by laws or other regulations 3.12 Safety issues 3.13 When others are totally closed to new ideas 3.14 Acknowledging shared responsibility 3.15 Adopting a positive 'can do' attitude 3.16 Following up on practical details 3.17 Pro-actively seeking information 3.18 Suggesting a new approach 3.19 Talking to others about possible answers 3.20 Constraints of the broader context and environment 3.21 Overall goal - what needs to be achieved 3.22 Personal hopes and expectations

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Evaluated the effectiveness and efficiency of workplace systems, processes and procedures. 1.2 Modelled the conscious process of critical inquiry to get new insights that s/he can get in formulating action plans on continuous improvement in the workplace and real-life 1.3 Practiced the habit of critical inquiry and curiosity in the workplace 1.4 Shown a thorough knowledge and understanding of how critical thinking impacts on individual lives, the broader community and work situations. 1.5 Developed practical action plans for improving workplace conditions.
2. Resource Implications	2.1 Interactions with specific challenges and situations to demonstrate the application of critical thinking (this would usually involve interactions with others).
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by the candidate 3.2 Evaluation of a candidate blog exploring different ideas and questions 3.3 Review of candidate response to scenarios that allow the candidate to apply critical thinking techniques to a life or work situation, and to demonstrate ability to portray curiosity and exploration of new concepts 3.4 Evaluation of candidate response to the challenge of adopting different perspectives on a situation, and ability to both develop and respond to questions from those perspectives 3.5 Observation of the candidate participating in a group problem- solving session 3.6 Oral or written questioning to assess knowledge of typical blockers to the critical thinking process. 3.7 Life Narrative Inquiry to reflect life stories that reflect how critical thinking and problem solving is applied in the lives.
4. Context for Assessment	4.1 In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY : CONTRIBUTE TO THE PRACTICE OF SOCIAL JUSTICE IN THE WORKPLACE

UNIT CODE : 500311404

UNIT DESCRIPTOR : This unit covers ways and means to assume active roles in resolving local and global challenges and to become proactive contributors to a more peaceful and sustainable world.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Update self on local, national and global trends/ issues in the workplace	1.1 ***Media*** are regularly ***scannedl monitored*** for trends and issues relevant to human rights, gender equality, promotion of culture of peace and non- violence, global citizenship and appreciation of cultural diversity. 1.2 Knowledge and understanding *of* ***local, national and global issues*** and their interconnectedness and interdependency are acquired. 1.3 Notable issues and trends are critically examined and discussed with peers, colleagues, or family members.	1.1 Local, national and global *systems* and structures 1.2 Issues affecting interaction and connectedness of communities at local, national and global levels 1.3 Underlying assumptions and power dynamics (politics, understanding political system, social structures, labor laws, labor relations, human right)	1.1 Monitoring trends and issues relevant to human rights, gender equality, culture of peace, global citizenship, and cultural diversity using different media platforms 1.2 Analyzing trends and issues relevant to human rights, gender equality, culture of peace, global citizenship, and cultural diversity 1.3 Engaging in discourse about the local, national and global issues
2. Relate local and global trends to workplace context	2.1 Local events are reflected on for implications in one's own situation and in the external global environment. 2.2 Sense of belonging to a common humanity, sharing values and	2.1 Different levels of human identity according to Amber Mayer (2015) 2.2 Different communities people belong to and how these are connected	2.1 Recognizing differences and commonalities among people 2.2 Strengthening attitudes of empathy, solidarity and respect for diversity

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	responsibilities are developed. 2.3 Attitudes of empathy, solidarity and respect for differences and diversity are strengthened.	2.3 Difference and respect for cultural diversity	2.3 Connecting local issues to global trends, and vice versa.
3. Engage and take actions on workplace issues and concerns	3.1 Effective and responsible actions at local, national and global levels are identified. 3.2 Motivation and willingness to take necessary actions are developed. 3.3 Attitude of "thinking globally and acting locally" is practiced.	3.1 Actions that can be taken individually and collectively 3.2 Ethically responsible behaviour 3.3 Importance and benefits of civic engagement 3.4 Strategies and techniques of "thinking globally and acting locally	3.1 Employing appropriate actions to address workplace issues involving national and global trends 3.2 Showing concern and willingness to take part in the development efforts to discuss workplace issues and concerns 3.3 Applying the attitude of "thinking globally and acting locally" in the workplace

RANGE OF VARIABLES

VARIABLE	RANGE
1. Media	May include but not limited to: 1.1 Print media 1.2 Broadcast media 1.3 Internet and social media
2. Scanning/Monitoring	May include but not limited to: 2.1 Sourcing from key informants 2.2 Conversation with clients 2.3 Man-on-the-street conversation 2.4 Scanning print and broadcast media
3. Local, national and global issues	May include but not limited to: 3.1 Poverty 3.2 Unemployment 3.3 Global warming 3.4 Safety, security, and well-being

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Demonstrated ability and attitude to keep oneself updated of relevant issues/trends 1.2 Demonstrated ability to think and act based on one's principles and values 1.3 Demonstrated a holistic/global outlook on internal and external events in the workplace
2. Resource Implications	**The following resources should be provided:** 2.1 Access to workplace and resources 2.2 Case studies
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Demonstration or simulation with oral questioning 3.2 Case problems involving global and local issues 3.3 Third-party report
4. Context for Assessment	4.1 Competency assessment may occur in workplace or any appropriately simulated environment

UNIT OF COMPETENCY : MANAGE INNOVATIVE WORK INSTRUCTIONS

UNIT CODE : 500311405

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to sustain and develop a workplace environment in which improvement, innovation and learning are promoted and reinforced.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Review and analyze existing workplace practices	1.1 Current instructions and strategies to perform tasks in the workplace are reviewed. 1.2 Climate for innovation at the organizational level is defined. 1.3 Innovation drivers in the workplace are identified.	1.1 Four drivers of innovation according to Gallup Management Journal (2007) 1.2 Contextual variables related to innovative practices in the organization 1.3 The nine dimensions of innovation climate (Isaksen & Isaksen, 2018) 1.4 Types of Innovation identified by Gopalakrishnan and Damanpour (1997)	1.1 Investigating the organizational needs in the innovation process 1.2 Defining current organizational innovative practices 1.3 Linking innovation to contextual variables in the organization
2. Examine opportunities for continuous improvement and innovation of practices in the workplace	2.1 Effectiveness of innovative practices in the workplace is determined. 2.1 ***Innovative behaviors*** of leaders or managers in the organization are assessed. 2.3 Driving principles of innovation are discussed.	2.1 Determinants of innovative behavior by Scott and Bruce (1992) 2.2 Four principles of innovation according to Gallup Management Journal (2007)	2.1 Evaluating organizational innovative practices 2.2 Gauging innovative behaviors of the leaders and managers in the organization 2.3 Deliberating opportunities and challenges in implementing innovation
3. Implement innovative ways in	3.1 Innovative behaviors in the	3.1 Determinants of innovative	3.1 Developing risk management

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
the conduct of usual workplace practices	workplace are performed. 3.2 Innovative climate in the workplace is maintained. 3.3 Adoption or modification of new ideas relevant to the organizational needs is achieved.	behavior by Scott and Bruce (1992) 3.2 The nine dimensions of innovation climate (Isaksen & Isaksen, 2018) 3.3 Techniques in implementing innovative change in the workplace	techniques and control systems 3.2 Evaluating impact of changes and developing action plans 3.3 Demonstrating strategies and techniques in managing changes in the workplace

RANGE OF VARIABLES

VARIABLE	RANGE
1. Innovation	May include but not limited to: 1.1 Products versus processes 1.2 Radical versus incremental 1.3 Technical versus administrative
2. Innovative behaviors	May include but not limited to: 2.1 Always generate creative ideas or new solutions 2.1 Exploring and secure funds or resources required for implementing new ideas 2.1 Establishing adequate plans and schedules for implementing new ideas 2.1 Contributing suggestions or approaches for others' creative ideas

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Analyzed and evaluated systems and performance in key areas of the organization and identify opportunities for improvement, seeking advice from experts as appropriate 1.2 Promoted the value of creativity, innovation and sustainability and recognize successes 1.3 Supported the testing and trialling of new ideas and undertake risk management and cost-benefit analysis for options 1.4 Planned for and implemented improvements using organization's processes for approvals, project management and change management 1.5 Facilitated effective contributions to and communications about continuous improvement and innovation 1.6 Captured insights, experiences and ideas for improvements and incorporate them into the organization's knowledge management systems and future planning.
2. Resource Implications	**The following resources should be provided:** 2.1 Impact evaluation materials (guide and form)
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Interview 3.2 Written Evaluation 3.3 Case analysis
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions

UNIT OF COMPETENCY : MANAGE AND EVALUATE USAGE OF INFORMATION

UNIT CODE : 500311406

UNIT DESCRIPTOR : This unit of competency covers the knowledge, skills and attitudes required to support.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Review information needs and sources	1.1 The ***information*** needs of individuals/teams are determined and the sources are identified. 1.2 Information held by the organisation is reviewed to determine suitability and accessibility. 1.3 Plans are prepared to obtain information that is not available or accessible within the organization.	1.1 Analysis and display techniques 1.2 Information evaluation issues 1.3 Information storage requirements and methods 1.4 Reporting procedures of the organisation	1.1 Analysing record information 1.2 Communicating effectively 1.3 Disseminating information 1.4 Presenting information
2. Collect and analyze information	2.1 ***Collection*** of information is interpreted timely and relevant to the needs of individuals/teams. 2.2 Information is collected in formal suitable for analysis, interpretation and dissemination. 2.3 Information is analyzed to identify relevant trends and developments in terms of the needs for which is acquired.	2.1 Information collection, collation 2.2 Analysis and display techniques 2.3 Information evaluation issues 2.4 Information storage requirements and methods 2.5 Reporting procedures of the organisation	2.1 Collecting and collating information 2.2 Analysing record information 2.3 Communicating effectively 2.4 Disseminating information 2.5 Presenting information
3. Use management information systems	3.1 ***Management information systems*** are used to store and retrieve	3.1 Analysis and display techniques	3.1 Analysing record information

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	data for decision making. 3.2 Technology available in the work area/ organisation is used to manage information. 3.3 Recommendations for improving the information system are submitted to designated persons/ groups.	3.2 Information collection, collation 3.3 Information evaluation issues 3.4 Information storage requirements and methods 3.5 Reporting procedures of the organization	3.2 Collecting and collating information 3.3 Communicating effectively 3.4 Disseminating information 3.5 Presenting information 3.6 Using management information systems to store and retrieve data
4. Report and disseminate analyzed information	4.1 The results of information gathering, ***analysis*** and synthesis are reported within specified time frames and to the standard defined by the organisation. 4.2 The results of information gathering, analysis and synthesis are reported so they can be inputs to policy development and organisation decision making. 4.3 Information which is gathered is disseminated to appropriate personnel within the specified timeframe.	4.1 Analysis and display techniques 4.2 Information collection, collation 4.3 Information evaluation issues 4.4 Information storage requirements and methods 4.5 Reporting procedures of the organisation	4.1 Analysing record information 4.2 Collecting and collating information 4.3 Communicating effectively 4.4 Disseminating information 4.5 Presenting information 4.6 Using management information systems to store and retrieve data

RANGE OF VARIABLES

VARIABLE	RANGE
1. Information	May include but not limited to: 1.1 Routine and complex reports and submissions 1.2 Briefing notes 1.3 Ministerial 1.4 Proposals 1.5 Project plans 1.6 Articles and promotional material
2. Collection techniques or methods	May include but not limited to: 2.1 Collection techniques may include: 2.1.1 Research 2.1.2 Surveys 2.1.3 Literature search 2.1.4 Interviews 2.1.5 Data bases 2.1.6 Observation 2.2 Collection methods may include: 2.2.1 Indexing 2.2.2 linking 2.2.3 Sorting 2.2.4 Comparing 2.2.5 Categorizing 2.2.6 Integrating
3. Analysis	May include but not limited to: 3.1 application of statistical methods 3.2 mathematical calculations 3.3 critical analysis 3.4 problem solving
4. Management information systems	May include but not limited to: 4.1 Computers 4.2 Communication channels 4.3 Records management 4.4 Procedures 4.5 Manuals 4.6 Protocol 4.7 Legislation 4.8 Guidelines and awards 4.9 Organizational 4.10 Legal and policy materials

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Identified information needs and sources 1.2 Collected and analyzed information 1.2 Determined the correct / preventive action 1.2 Used management information systems 1.2 Record and support information These aspects may be best assessed using a range of scenarios what ifs as a stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Resource Implications	**Specific resources for assessment** 2.1 Evidence of competent performance should be obtained by observing an individual in an information management role within the workplace or operational or simulated environment.
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written Test 3.2 Interview The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
4. Context for Assessment	4.1 In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY : LEAD IN IMPROVEMENT OF OCCUPATIONAL SAFETY AND HEALTH (OSH) PROGRAMS, POLICIES AND PROCEDURES

UNIT CODE : 500311407

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to assess Occupational Safety and Health (OSH) practices and programs, recommend OSH program improvement initiatives, and implement recommended improvements on Occupational Safety and Health (OSH) Programs, Procedures and Policies

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Assess Occupational Safety and Health (OSH) practices and programs	1.1 ***OSH practices and programs*** are reviewed based on workplace policies and procedures. 1.2 Appropriate personnel or ***OSH reference guides*** are consulted for proper guidance based on workplace policies and procedures. 1.3 Current practices and programs are evaluated based on acceptable level of OSH work standards.	1.1 OSH practices and programs workplace policies and procedures 1.2 OSH reference guides 1.3 OSH work standards	1.1 Critical thinking skills 1.2 Evaluating skills
2. Recommend OSH program improvement initiatives	2.1 ***OSH work improvement initiatives*** are identified that are relevant with the workplace scenario. 2.2 OSH program improvement plans are organized based on workplace policies and procedures. 2.3 OSH program improvement plans are presented	2.1 OSH Programs 2.2 OSH work improvement initiatives	2.1 Presenting 2.2 Communicating 2.3 Collaborating 2.4 Critical thinking 2.5 Observing

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	based on workplace policies and procedures.		
3. Implement recommended improvements on Occupational Safety and Health (OSH) Programs, Procedures and Policies	3.1 Approved improvements on OSH work improvement initiatives are communicated based on workplace policies and procedures. 3.2 Concern personnel are guided in accordance with workplace policies and procedures. 3.3 Implementation of the approved OSH initiatives are monitored in accordance with workplace policies and procedures. 3.4 Implementation of approved OSH initiatives are evaluated based on workplace policies and procedures.	3.1 Coaching Concepts 3.2 OSH work improvement initiatives 3.3 Supervisory Concepts	3.1 Monitoring 3.2 Evaluating 3.3 Auditing 3.4 Coaching 3.5 Supervising

RANGE OF VARIABLES

VARIABLE	RANGE
1. OSH Practices and Programs	May include but not limited to: 1.1 Planning, implementation and maintenance of manufacturing plants 1.2 Work-physiological, psychological, ergonomic and hygienic practices and programs 1.3 First aid within the workplace 1.4 Safety inspection practices
2. OSH Reference Guides	May include but not limited to: 2.1 Occupational Safety and Health Standards Book 2.2 OSHA Safety Bulletins and Magazines 2.3 Equipment Safety Operating Instructions 2.4 Established National Safety Management Books 2.5 Credible OSH Web-sites 2.6 Safety Solution Guide Books and Handbooks
3. OSH Work Improvement Initiatives	May include but not limited to: 3.1 Eliminate the hazard altogether 3.2 Isolate the hazard from anyone who could be harmed 3.3 Substitute the hazard with a safer alternative 3.4 Use administrative controls to reduce the risk 3.5 Use engineering controls to reduce the 3.6 Use personal protective equipment

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Consult appropriate personnel or OSH reference guides for proper guidance based on workplace policies and procedures 1.2 Evaluate current practices and programs based on acceptable level of OSH work standards 1.3 Identify OSH work improvement initiatives that are relevant with the workplace scenario 1.4 Present OSH program improvement plans based on workplace policies and procedures 1.5 Communicate approved improvements on OSH work program initiatives based on workplace policies and procedures 1.6 Monitor implementation of the approved OSH initiatives in accordance with workplace policies and procedures 1.7 Evaluate implementation of approved OSH initiatives based on workplace policies and procedures
2. Resource Implications	**The following resources should be provided:** 2.1 Workplace or assessment location 2.2 OSH personal records 2.3 PPE 2.4 Health records
3. Methods of Assessment	**Competency may be assessed through**: 3.1 Portfolio Assessment 3.2 Interview 3.3 Case Study/Situation 3.4 Observation/Demonstration and oral questioning
4. Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : LEAD TOWARDS IMPROVEMENT OF ENVIRONMENTAL WORK PROGRAMS, POLICIES AND PROCEDURES

UNIT CODE : 500311408

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes require in assessing environmental work practices and standards, recommending environmental work improvement initiatives and implementing recommended environmental improvements

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Assess environmental work practices and programs	1.1 ***Environmental practices and programs*** are reviewed based on workplace policies. 1.2 Appropriate personnel or ***environmental reference guides*** are consulted for proper guidance based on workplace policies.* 1.3 Current practices and programs are evaluated based on acceptable level of environmental work standards.*	1.1 Environmental Practices 1.2 Environmental Reference Guides 1.3 Corrective 1.4 Action and Follow-up 1.5 Relevant environmental experts 1.6 Re-Training Needs 1.7 Energy and Healthy Habits	1.1 Critical thinking 1.2 Problem solving 1.3 Observation Skills 1.4 Training Delivery Skills
2. Recommend environmental program improvements initiatives	2.1 Environment practices opportunities are Identified that are relevant with the workplace scenario. 2.2 Environmental program improvement plans are organized based on workplace policies and procedures.* 2.3 Environmental program improvement plans are presented	2.1 Environmental Practices and Standards 2.2 Mitigation Requirements	2.1 Presentation Skills 2.2 Critical thinking 2.3 Problem Solving 2.4 Observation Skills 2.5 Training Delivery Skills 2.6 Cost-Benefit Analysis

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	based on workplace policies and procedures.*		
3. Implement recommended improvements on environmental programs, policies and procedures	3.1 Approved improvements on ***environmental work program initiatives*** are promoted based on workplace policies and procedures. 3.2 Implementation of the approved environmental initiatives are monitored in accordance with workplace policies and procedures. 3.3 Implementation of approved environmental initiatives are evaluated based on workplace policies and procedures.	3.1 Environmental Work Initiatives 3.2 Communication Strategies 3.3 Environmental inspection and Monitoring Techniques 3.4 Notification Requirements	3.1 Inspecting 3.2 Critical thinking 3.3 Problem Solving 3.4 Observation Skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Environmental Practices and Programs	May include but not limited to: 1.1 Utilization of Energy, Water, Fuel 1.2 Segregation Practices 1.3 Waste Disposal and Reuse 1.4 Saving Resources 1.5 Waste Collection 1.6 Usage of Hazardous Materials 1.7 Chemical Application 1.8 Equipment Operation 1.9 Dewatering and Discharging 1.10 Surface Disturbance 1.11 Periodic Inspection 1.12 Resource Storage and Handling
2. Environmental Reference Guides	May include but not limited to: 2.1 Air Emission and Ambient Air Quality Guidelines 2.2 Energy Conservation Guidelines 2.3 Wastewater and Ambient Water Quality Guidelines 2.4 Water Conservation Guidelines 2.5 Hazardous Materials Management 2.6 Waste Management 2.7 Noise 2.8 Contaminated Land 2.9 Cultural Conservation Guides
3. Environmental Work Program Initiatives	May include but not limited to: 3.1 Low Energy Lighting 3.2 Water Reduction initiatives 3.3 Holding Employee Awareness event 3.4 Recycling Waste Materials 3.5 Unplugging power converters overnight 3.6 Tree-Planting 3.7 Wild-life conservation

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Consulted appropriate personnel or environmental reference guides for proper guidance based on workplace policies* 1.2 Evaluated current practices and standards based acceptable level of environmental work standards 1.3 Organized environmental standard improvement plans based on workplace policies and procedures 1.4 Presented environmental standard improvement plans based on workplace policies and procedures* 1.5 Promoted approved environmental work initiatives based on workplace policies and procedures 1.6 Evaluated the implementation of approved environmental improvements based on workplace policies and procedures
2. Resource Implications	**The following resources should be provided:** 2.1 Workplace/Assessment location 2.2 Legislation, policies, procedures, protocols and local ordinances relating to environmental protection 2.3 Case studies/scenarios relating to environmental protection
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written/ Oral Examination 3.2 Interview/Third Party Reports 3.3 Portfolio (citations/awards from GOs and NGOs, certificate of training – local and abroad) 3.4 Simulations and role-plays
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA center.

UNIT OF COMPETENCY : SUSTAIN ENTREPRENEURIAL SKILLS

UNIT CODE : 500311409

UNIT DESCRIPTOR : This unit covers the outcomes required to update and continue one's professional development along entrepreneurship, including applying such growth in skills toward expanding the enterprise and developing its work force.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Enhance one's business skills	1.1 ***Entrepreneurial skills*** development needs are identified and responded to promptly. 1.2 Market trends are monitored, anticipated and taken advantage of where feasible. 1.3 New technologies, products and processes are included/utilized where advantageous to the enterprise. 1.4 Constant dialog/linkages with other entrepreneurs/peers and stakeholders are maintained 1.5 Circulation and participation in business fora, meetings, conventions and exhibits are maintained.	1.1 Business models and strategies 1.2 Types and categories of businesses 1.3 Business internal controls 1.4 Market Trends 1.5 Relevant national and local legislation and regulations 1.6 Basic quality control and assurance concepts	1.1 Basic bookkeeping/ accounting skills 1.2 Communicating 1.3 Building relations with customer and employees 1.4 Building competitive advantage of the enterprise 1.5 Networking and Linkaging skills
2. Manage entrepreneurial practices	2.1 Ideas and comments for improvements are sought from workers and clients. 2.2 Staff/workers are encouraged and supported in their	2.1 Public relations concepts 2.2 Basic product promotion strategies	2.1 Building customer relations 2.2 Individual marketing 2.3 Using basic advertising

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	skills development and enhancement. 2.3 A culture of ***continuous improvement*** is fostered within the enterprise. 2.4 Innovations on the existing lines of products and services are encouraged.	2.3 Basic market and feasibility studies 2.4 Basic business ethics	(posters/ tarpaulins, flyers, social media, etc.)
3. Expand markets and clientele	3.1 Enterprise is built up and sustained through judicious control of cash flows. 3.2 Profitability of enterprise is ensured though appropriate ***internal controls*.** 3.3 Unnecessary or lower- priority expenses and purchases are avoided. 3.4 New markets and clients are identified based on current market trends.	3.1 Basic cost-benefit analysis 3.2 Basic financial management 3.3 Basic financial accounting 3.4 Business internal controls	3.1 Setting business priorities and strategies 3.2 Interpreting basic financial statements 3.3 Preparing business plans

RANGE OF VARIABLES

VARIABLE	RANGE
1. Entrepreneurial skills	May include but not limited to: 1.1 Financial management skills 1.2 People management skills 1.3 Operations management skills 1.4 Business acumen
2. Internal controls	May include but not limited to: 2.1 Accounting systems 2.2 Financial statements/reports 2.3 Cash management 2.4 Managing property, plant and equipment
3. Continuous improvement	May include but not limited to: 3.1 Accounting systems 3.2 Financial statements/reports 3.3 Cash management 3.4 Managing property, plant and equipment
4. Continuous improvement	May include: 4.1 Quality management systems (PDCA, ISO 9001,TQM, Six-Sigma, etc.) 4.2 Client feedback systems 4.3 assurance/Quality control systems

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate:** 1.1 Demonstrated enhancement of one's entrepreneurial skills through performance of business, supervisor evaluation, worker and client testimony
2. Resource Implications	**The following resources should be provided**: 2.1 Interview guide for entrepreneurs, enterprise workers and third parties 2.2 Materials and location relevant to the proposed activity and tasks
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Written report 3.2 Written examination 3.3 Demonstration/observation with oral questioning 3.4 Portfolio assessment with interview 3.5 Third-party report
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group

COMMON COMPETENCIES

UNIT OF COMPETENCY : APPLY SAFETY MEASURES IN FARM OPERATIONS

UNIT CODE : AFF321201

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to perform safety measures effectively and efficiently. It includes identifying areas, tools, materials, time and place in performing safety measures.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Determine areas of concern for safety measures	1.1 **Work *tasks*** are identified in line with farm operations. 1.2 ***Place*** for safety measures are determined in line with farm operations. 1.3 ***Time*** for safety measures are determined in line with farm operations. 1.4 Appropriate ***tools, materials and outfits*** are prepared in line with job requirements.	1.1 Different work tasks in farm operations 1.2 Place and time for implementation of safety measures 1.3 Different hazards in the workplace 1.4 Types of tools, materials and outfits 1.5 Preparation of tools, materials and outfits	1.1 Identifying work tasks in farm operations 1.2 Determining place and time for implementation of safety measures 1.3 Reading labels, manuals and other basic safety information 1.4 Identifying effective/ functional tools, materials and outfit 1.5 Preparing tools, materials and outfits 1.6 Discarding defective tools, and materials
2. Apply appropriate safety measures	2.1 Tools and materials are used according to specifications and procedures. 2.2 Outfits are worn according to farm requirements. 2.3 Effectivity/shelf life/expiration of	2.1 Uses and functions of tools 2.2 Outfits and how to wear it 2.3 Expiration/shelf life of materials 2.4 Proper disposal of expired materials	2.1 Using tools and materials in the workplace 2.2 Wearing of outfits 2.3 Observing expiration/shelf life of materials 2.4 Disposing of expired materials

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	materials are strictly observed. 2.4 ***Emergency procedures*** are known and followed to ensure a safework requirement. 2.5 ***Hazards*** in the workplace are identified and reported in line with farm guidelines.	2.5 Environmental rules and regulations 2.6 Disaster Risk and Reduction Management 2.7 Emergency procedures 2.8 Hazards identification and reporting 2.9 Climate Change Adaptation and Mitigation 2.10 Communication skills 2.11 OSHS	2.5 Following emergency procedures 2.6 Identifying and reporting of hazards in workplace area
3. Safekeep /dispose tools, materials and outfit	3.1 Used tools and outfit are cleaned after use and stored in designated areas. 3.2 Unused materials are properly labeled and stored according to manufacturer's recommendation and farm requirements. 3.3 Waste materials are disposed according to manufacturers, government and farm requirements.	3.1 Procedures of cleaning used tools and outfits 3.2 Label and storage unused materials 3.3 Disposal of wastes materials 3.4 Manufacturers' recommendation on keeping materials 3.5 Environmental rules and regulations	3.1 Cleaning used tools and outfit 3.2 Labeling and storing unused materials 3.3 Disposing waste materials

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work tasks	Work task may be selected from any of the subsectors: 1.1 Crop Production 1.2 Post-harvest 1.3 Agri-marketing 1.4 Farm Equipment
2. Place	2.1 Stock room/storage areas/warehouse 2.2 Field/farm/orchard
3. Time	3.1 Fertilizer and pesticides application 3.2 Feed mixing and feeding 3.3 Harvesting and hauling
4. Tools, materials and outfits	4.1 Tools 4.1.1 Wrenches 4.1.2 Screw driver 4.1.3 Pliers 4.2 Outfit 4.2.1 Masks 4.2.2 Gloves 4.2.3 Boots 4.2.4 Overall coats 4.2.5 Hat 4.2.6 Eye goggles
5. Emergency procedures	5.1 Location of first aid kit 5.2 Evacuation 5.3 Agencies contract 5.4 Farm emergency procedures
6. Hazards	6.1 Chemical 6.2 Electrical 6.3 Falls

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Determined areas of concern for safety measures. 1.2 Applied appropriate safety measures according to industry requirements. 1.3 Prepared tools, materials and outfit needed. 1.4 Performed proper disposal of used materials. 1.5 Cleaned and stored tools, materials and outfit in designated facilities.
2. Resource Implications	The following resources should be provided: 2.1 Farm location 2.2 Tools, equipment and outfits appropriate in applying safety measures
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Practical demonstration 3.2 Third Party Report
4. Context for Assessment	4.1 Assessment may occur in the workplace or in a simulated workplace or as part of a team under limited supervision.

UNIT OF COMPETENCY : PERFORM ESTIMATION AND BASIC CALCULATION

UNIT CODE : AFF321203

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to perform basic workplace calculations.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform estimation	1.1 Job requirements are identified from written or oral communications. 1.2 Quantities of materials and resources required to complete a work task are estimated. 1.3 The time needed to complete a work activity is estimated. 1.4 Accurate estimate for work completion are made. 1.5 Estimate of materials and resources are reported to appropriate person.	1.1 Job requirements/ labor needs 1.2 Calculation of quantities of materials and resources required 1.3 Calculation of time for job completion 1.4 Preparation of estimate report 1.5 Basic mathematical operations 1.6 Percentage and ratios 1.7 Unit Conversion	1.1 Identifying job requirements/ labor 1.2 Estimating quantities of materials and resources required 1.3 Estimating time for job completion 1.4 Performing basic calculation 1.5 Compute percentage 1.6 Convert English to metric systems of measurement 1.7 Preparing estimate report
2. Perform basic workplace calculation	1.1 ***System and units of measurement*** to be followed are ascertained. 1.2 Calculation needed to complete work tasks are performed using the ***four basic mathematical operation***. 1.3 Calculate whole fraction, percentage and mixed when are used to complete the instructions.	2.1 Four basic mathematical operation 2.2 System and units of measurement 2.3 Fraction, percentage and ratio 2.4 Material take-off 2.5 Materials costing	2.1 Compute bill of materials 2.2 Compute project cost

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	1.4 Number computed is checked following work requirements.		

RANGE OF VARIABLES

VARIABLE	RANGE
1. Four basic mathematical operation	1.1 Addition 1.2 Subtraction 1.3 Multiplication 1.4 Division
2. System of measurement	2.1 English 2.2 Metric
3. Units of measurement	3.1 Area 3.2 Volume 3.3 Weight 3.4 Length

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Performed estimation 1.2 Performed basic workplace calculation 1.3 Applied corrective measures as maybe necessary
2. Resource Implications	The following resources should be provided: 2.1 Relevant tools and equipment for basic calculation 2.2 Recommended data
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Practical demonstration 3.2 Written examination
4. Context for Assessment	4.1 Assessment may occur in the workplace or in a simulated workplace or as part of a team under limited supervision.

UNIT OF COMPETENCY : PROVIDE QUALITY CUSTOMER SERVICE

UNIT CODE : HCS421201

UNIT DESCRIPTOR : This unit covers the knowledge, skill and attitudes required to provide effective and efficient services to the clients of the microfinance industry.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE AND ATTITUDE	REQUIRED SKILLS
1. Update knowledge of products and services	1.1 Products and/or services to be marketed are identified, familiarized with and fully understood. 1.2 Information on programs is accessed. 1.3 Knowledge on ***products, services and programs*** are updated. 1.4 Additional information on products, services and programs.	1.1 Introduction to Microfinance 1.2 Terms and definitions 1.3 Organization profile 1.4 MFIs products and services (financial and non-financial): 1.4.1 Loans 1.4.2 Savings 1.4.3 Insurance 1.4.4 Trainings 1.4.5 Marketing Assistance 1.5 MFIs programs 1.6 Organization procedures and processes in providing quality customer service 1.7 Work values and ethics: 1.7.1 Quality consciousness 1.7.1 Proactive 1.7.1 Patience 1.7.1 Information awareness	1.1 Effective oral communication skills 1.2 Listening skills 1.3 Motivational skills 1.4 Interpersonal skills 1.5 Presentation skills 1.6 Demonstrating cost/benefits/ value to clients based on client's expectations and needs 1.7 Generating several alternative solutions that will meet customer's needs 1.8 Data gathering skills 1.9 Computer literacy
2. Assess needs of new and existing clients	2.1 Active listening is used to gather information from ***clients***. 2.2 Orientation on products/services, program and policies are conducted.	2.1 Terms and definitions 2.2 Methods of assessing needs of new and existing client's: 2.2.1 Interviewing 2.2.2 Observation	

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE AND ATTITUDE	REQUIRED SKILLS
	2.3 Identified related or applicable ***needs*** of clients based on the products/services and program being offered. 2.4 Provided clients with courteous and professional treatment throughout the interaction using ***interactive communication***. 2.5 Inquiries, concerns and comments are responded to promptly and accurately in accordance with organization's policies. 2.6 Recorded all the gathered information given by the clients.	2.2.3 Focus Group Discussion 2.2.4 Needs Survey 2.3 Procedures in conducting product and service orientation of clients 2.4 Procedures in assessing needs of new and existing client's 2.5 Procedure in innovating products and services 2.6 Guidelines on recording and reporting clients' needs 2.7 Work values and ethics: 2.7.1 Quality consciousness 2.7.2 Proactive 2.7.3 Clients focus 2.7.4 Patience 2.7.5 Vigilance 2.7.6 Sincerity 2.7.7 Integrity 2.7.8 Commitment	
3. Conduct client satisfaction survey	3.1 Client satisfaction survey is administered. 3.2 Survey results are collated and analyzed. 3.3 Positive and negative results are defined. 3.4 Negative feedbacks are well addressed immediately through appropriate	3.1 Terms and definitions 3.2 Client satisfaction survey methodologies: 3.2.1 Interviewing 3.2.2 Observation 3.2.3 Focus Group Discussion 3.2.4 Structured Field Survey 3.3 Survey Process:	

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE AND ATTITUDE	REQUIRED SKILLS
	communication strategies.	3.3.1 Purpose of survey 3.3.2 Designing survey instruments 3.3.3 Designing interview and FGD guides 3.3.4 Administering survey instruments 3.3.5 Interviewing target respondents 3.3.6 Conducting FGD 3.3.7 Data processing, analysis and presentation 3.3.8Recommendations 3.4 How feedback from survey results are address 3.5 Work values and ethics: 3.5.1 Quality consciousness 3.5.2 Proactive 3.5.2 Patience 3.5.2 Sincerity 3.5.2 Integrity 3.5.2 Commitment 3.5.2 Courteous 3.5.2 Professional	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Product/services and programs	Includes the following but are not limited to: 1.1 Financial services 1.2 Non-financial services
2. Clients	2.1 Entrepreneurial poor
3. Needs	3.1 Designing clients satisfaction survey instruments 3.2 Procedure in administering clients satisfaction survey 3.3 Processing clients satisfaction survey data 3.4 Product/service knowledge 3.5 Knowledge of programs
4. Interactive communication	4.1 Information is gathered in a courteous and professional manner 4.2 Probing skills 4.3 Skills in effective questioning 4.4 Consistent service quality for all types of customers 4.5 Avoiding controversial issues like politics and religion
5. Communication strategies	5.1 One-on-one interaction 5.2 Group meetings

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Received, assessed and responded to client needs 1.2 Applied organizational quality procedures and processes in providing quality service
2. Resource Implications	The following resources MUST be provided: 2.1 Meeting venue/s 2.2 Equipment and furnishings appropriate to a microfinance set-up 2.3 Complete information on products, services and programs 2.4 Products, services and programs brochures 2.5 Organization's standard forms for clients
3. Methods of Assessment	Competency may be assessed through: 3.1 Oral questioning 3.2 Written test 3.3 Practical demonstration
4. Context for Assessment	4.1 Competency may be assessed in the workplace or in a simulated workplace environment

UNIT OF COMPETENCY : COMPLY WITH QUALITY AND ETHICAL STANDARDS

UNIT CODE : HCS315202

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes needed to apply quality and ethical standards in the workplace. The unit also includes the application of relevant safety procedures and regulations, organization procedures, client and industry requirements.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Assess quality of received materials	1.1 Work instruction is obtained and carried out in accordance with standard operating procedures. 1.2 Received ***materials*** are checked against workplace standards and specifications. 1.3 Defective materials are identified, reported and isolated. 1.4 Defective materials are repaired/ replaced in accordance with workplace procedures. 1.5 ***Defects*** and any identified causes are recorded and/or reported to the concerned personnel in accordance with workplace procedures.	1.1 Standard operating procedures on receiving materials 1.2 Material descriptions and specifications 1.3 Proper handling of received materials 1.4 Procedures on assessing quality of received materials 1.5 Material defects and their causes 1.6 Dealing with defective materials 1.7 Reporting defective received materials 1.8 Total Quality Management/Improvement 1.9 Work values and ethics: 1.9.1 Quality consciousness 1.9.2 Honesty 1.9.3 Integrity 1.9.4 Concern for details	1.1 Comprehension skills 1.2 Communication skills 1.3 Critical thinking, problem solving and decision-making skills 1.4 Technical skills 1.5 Interpersonal skills 1.6 Community organizing skills 1.7 Analytical skills 1.8 Quantitative skills 1.9 Qualitative skills

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Assess own work/output	2.1 ***Documentation*** relative to quality within the company is identified and used. 2.2 Completed work is checked against workplace standards. 2.3 Defects are identified and corrected in accordance with the company ***quality standards***.	2.1 Organization's vision, mission, goals and objectives 2.2 Organization standards on quality of work/output 2.3 Rights, roles and responsibilities of farmers 2.4 Assessment methods on quality of work/output 2.5 Procedures on assessing quality of work/output 2.6 Procedures on identification of work defects/deviations 2.7 Common work/output defects/deviations from standards 2.8 Ways of rectifying work/output defects/deviations 2.9 Total Quality Management/Improvement 2.10 Work values and ethics: 2.10.1 Honesty 2.10.2 Integrity 2.10.3 Commitment	2.1 Comprehension skills 2.2 Communication skills 2.3 Critical thinking, problem solving and decision making skills 2.4 Technical skills 2.5 Interpersonal skills 2.6 Analytical skills
3. Submit oneself to third party assessment	3.1 Information on the quality and other indicators of performance are recorded in accordance with workplace procedures. 3.2 In cases of deviations from specific quality standards, causes	3.1 Organization's vision, mission, goals and objectives 3.2 Performance evaluation system and procedure 3.3 Performance key result areas and indicators 3.4 Procedures on third party	

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	are documented and reported in accordance with the workplace's standards operating procedures. 3.3 In cases of objections/ disagreements, reasons are expressed thru written documentation. 3.4 Settlements are sought in accordance with company policies.	assessment of performance 3.5 Documentation of work defects/ deviations 3.6 Rectification of work/output defects/deviations and their causes 3.7 Total Quality Management/Improvement 3.8 Measures to improve work performance 3.9 Work values and ethics: 3.9.1 Humility 3.9.1 Fairness 3.9.1 Integrity 3.9.1 Quality consciousness	
4. Engage in quality improvement	4.1 Process improvement procedures are participated in relative to workplace assignment. 4.2 Work is carried out in accordance with process improvement procedures. 4.3 Services are delivered in accordance with ethical standards. 4.4 Quality service is monitored to ensure client satisfaction. 4.5 ***Client's*** needs are assessed through conduct of researches, focus group discussions, and satisfaction surveys/interviews.	4.1 Total Quality Management/Improvement 4.2 Methods of quality improvement 4.3 Methods of monitoring customer satisfaction 4.4 Procedures in improving quality of customer service: 4.4.1 Assessment of clients' needs 4.4.2 Monitoring quality of service 4.4.3 Identification of needed improvement of quality 4.4.4 Reporting of findings and	

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	4.6 Trainings, orientations, and exposures are rendered to ensure their understanding/ familiarization on products, services.	recommend ations 4.4.5 Intervention to improve quality service to clients 4.5 Professional and ethical standards in delivering services to clients 4.6 Work values and ethics: 4.6.1 Quality consciousne ss 4.6.2 Integrity 4.6.2 Commitment	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials	Materials may include but are not limited to: 1.1 Manuals, brochures, flyers, flipcharts, signages and tarpaulin 1.2 Work orders 1.3 Standard forms 1.4 Recorded voice files/audio video presentations 1.5 PowerPoint presentation materials 1.6 Documentations 1.7 Software 1.8 Hardware 1.9 Office supplies 1.10 Office equipment 1.11 Holy Scriptures
2. Defects/Irregularities	Defects may include but are not limited to: 2.1 Deviation from the requirements of the client 2.2 Deviation from the requirements and standard operating procedures of the organization/institution 2.3 Manuals containing incorrect/outdated information 2.4 Software/hardware defects 2.5 Poor employee interpersonal relationships/conflicts among employees 2.6 Loose implementation of organizational policies and procedures 2.7 Poor/inappropriate training designs 2.8 Non-compliance of selection and recruitment procedures of employees 2.9 Work fatigue and lost of interest to work being experience by the employee/s 2.10 Lack of clear understanding about one's role and responsibilities 2.11 Non-compliance of selection and recruitment procedures of clients 2.12 Undesirable work behavior of employees 2.13 Breakdown of/barriers to communication 2.14 Outdated work plans and schedules
3. Documentation	Includes the following but are not limited to: 3.1 Standard Operating Procedures 3.2 Quality checklist 3.3 Monitoring feedback sheet 3.4 Forms such as Loan Applications, CCI/BI, Cash Flows, Loan Utilization Checks, Client Exits/ Withdrawals, Work/Job Order, Client Feedback Notice, Material Requisition Form, Performance Appraisal Report, Training Evaluation Forms 3.5 Reports such as Financial Statements, Operational Assessments/Highlights and Plans, Cash Position Reports

VARIABLE	RANGE
	3.6 Minutes of meetings (Board, Branch, Department/Units/Groups) 3.7 Special orders, memorandums, notices, announcements 3.8 Employee movements (promotion, demotion, discharge, termination, suspension) 3.9 Linkages such as Loan Verification, SSS and Philhealth dues 3.10 Organizational Profile (Vision, Mission, Goals and Objectives) 3.11 Electronic documentations e.g. Website 3.12 Files/Employees' Profile
4. Quality Standards	Quality standards may be related but are not limited to the following: 4.1 Materials 4.2 Software 4.3 Office supplies 4.4 Office facilities 4.5 Office equipment 4.6 Office standard forms 4.7 Work processes 4.8 Customer service 4.9 Products and services 4.10 Work outputs 4.11 Communication process 4.12 Ethical and professional ethics 4.13 Training program design and delivery 4.14 Value added services/product innovations 4.15 Organization's policies and procedures manual
5. Client	Includes the following but are not limited to: 5.1 External clients (customers, partners, members, subscribers, end users, investors/funders, service providers, agencies) 5.2 Internal clients (within the organization/co-employees, immediate superiors, board of trustees)

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Performed work in accordance with the organization's standard operating procedures and specifications. 1.2 Identified and reported defects in accordance with standard operating procedures. 1.3 Carried out work in accordance with the process improvement procedures.
2. Resource Implications	The following resources should be provided: 2.1 Product manuals and brochures 2.2 Marketing and promotional materials 2.3 Orientation and presentation materials 2.4 Office standard forms and documentation 2.5 Operational handbook/manuals 2.6 Work plans and schedules 2.7 Hardware 2.8 Software
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Written Examination 3.2 Interviews 3.3 Audit Report 3.4 Monthly Reports 3.5 Practical Demonstration 3.6 Performance Evaluation
4. Context for Assessment	4.1 Assessment may be conducted in the workplace or in a simulated workplace environment

CORE COMPETENCIES

UNIT OF COMPETENCY : ESTABLISH SAMPLING PLAN

UNIT CODE : CS-AFF314301

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes required in establishing sampling plan. It includes planning sampling activities, conducting sampling operations, and reviewing sampling effectiveness.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan sampling activities	1.1 ***Sampling objectives*** are identified based on ***product characteristics*** and ***testing requirements***. 1.2 ***Sampling scope*** is determined following industry practice. 1.3 ***Sampling methods*** is selected in accordance with regulatory standards. 1.4 ***Sampling quantity*** is specified based on testing requirements, re-testing needs, and sample retention provisions. 1.5 Sampling plan is prepared in accordance with ***established protocols*** and standard testing procedures.	**SCIENCE** 1.1 Product characteristics 1.2 Sampling representativeness and statistical significance 1.3 Variability of agricultural products and its impact on sampling **TECHNOLOGY** 1.4 Sampling tools and automated systems 1.5 Data collection software for monitoring sampling activities 1.6 Online and digital systems for organizing and tracking sampling plans **ENVIRONMENT AND OTHER RELATED LAWS** 1.7 Awareness on Philippine National Standards for agricultural product testing 1.8 Compliance with Codex Alimentarius for food safety and quality standards	1.1 Identifying sampling objectives 1.2 Determining sampling scope 1.3 Selecting sampling methods 1.4 Specifying sampling activity 1.5 Preparing sampling plan

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		1.9 Regulatory standards and procedures for agricultural product sampling **MATHEMATICS** 1.10 Sample size calculation based on statistical methods 1.11 Sampling quantity for testing and retention 1.12 Probability and variance in sampling methods **COMMUNICATION** 1.14 Sampling plans 1.15 Sampling protocols and procedures	
2. Conduct sampling operations	2.1 ***Sampling tools*** and ***sites*** are selected based on product type and ***sampling conditions.*** 2.2 Samples are collected according to ***standard operating procedures***. 2.3 Samples are labeled and recorded based on ***traceability requirements***.	**SCIENCE** 2.1 Contamination risks and preventive measures in sampling 2.2 Physical and chemical properties of products that affect sample integrity 2.3 Environmental conditions affecting sample quality **TECHNOLOGY** 2.4 Sampling tools 2.5 Barcoding or QR codes for sample traceability 2.6 Software for managing sample collection and tracking	2.1 Selecting sampling tools and sites 2.2 Collecting samples 2.3 Labeling and recording samples

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		ENVIRONMENT AND OTHER RELATED LAWS 2.7 Good Laboratory Practices (GLP) for sample collection 2.8 Awareness on ISO/IEC 17025 for laboratory competence and sampling standards 2.9 Philippine National Standards **MATHEMATICS** 2.10 Calculation on sample sizes based on batch or lot size 2.11 Estimation on sample retention periods for re-testing 2.12 Measurement units in sample collection and labeling **COMMUNICATION** 2.13 Reporting findings during sampling operations	
3. Review sampling effectiveness	3.1 ***Sample characteristics*** are verified to align with intended test requirements following industry practice. 3.2 Sampling methods are validated for adequacy based on established ***quality system standards***. 3.3 ***Sampling report*** is completed according to	**SCIENCE** 3.1 Sample representativeness and integrity 3.2 Sample characteristics against testing criteria 3.3 Impact of sampling method on product testing accuracy **TECHNOLOGY** 3.4 Data analysis tools for	3.1 Verifying sample characteristics 3.2 Validating sampling methods 3.3 Completing sampling report

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	organizational procedures.	evaluating sample quality and effectiveness 3.5 Quality assurance systems 3.6 Tools for generating detailed reports on sampling operations **ENVIRONMENT AND OTHER RELATED LAWS** 3.7 Compliance with ISO 9001 (Quality Management Systems) for sampling validation 3.8 Adherence to ISO/IEC 17025 for laboratory and sampling standards 3.9 Regulatory frameworks for product testing and sample management **MATHEMATICS** 3.10 Sample test results analysis 3.11 Statistical methods for validating sample effectiveness 3.12 Calculation on sampling error margins **COMMUNICATION** 3.13 Sampling reports 3.14 Sampling results and recommendation	

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		s for improvement 3.15 Documentation on deviations or issues encountered during sampling	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Sampling objectives	Sampling objectives may include: 1.1 Determine product quality 1.2 Verify safety compliance 1.3 Monitor consistency of production 1.4 Support regulatory inspections
2. Product characteristics	Product characteristics may include: 2.1 Physical form (solid, liquid, powder) 2.2 Perishability or shelf life 2.3 Packaging type and condition 2.4 Homogeneity or variability of the product
3. Testing requirements	Testing requirements may include: 3.1 Chemical analysis 3.2 Microbiological examination 3.3 Physical inspection 3.4 Compliance with national or international standards
4. Sampling scope	Sampling scope may include: 4.1 Coverage area 4.1 Number of sampling points 4.1 Batch or lot size 4.1 Time frame or sampling frequency
5. Sampling methods	Sampling methods may include: 5.1 Random sampling 5.2 Stratified sampling 5.3 Composite sampling 5.4 Systematic sampling
6. Sampling quantity	Sampling quantity may include: 6.1 Amount required for initial testing 6.2 Quantity for confirmatory re-testing 6.3 Quantity for retention or storage
7. Established protocols	Established protocols may include: 7.1 Organizational standard operating procedures (SOPs) 7.2 Industry-specific technical manuals 7.3 Laboratory quality assurance manuals
8. Sampling tools	Sampling tools may include: 8.1 Sterile scoops or spatulas 8.2 Forceps or grabbers 8.3 Sample containers 8.4 Pipettes or automated samplers
9. Sampling sites	Sampling sites may include: 9.1 Production areas 9.2 Packaging or assembly lines 9.3 Storage or warehouse facilities 9.4 Distribution points or retail locations
10. Sampling conditions	Sampling conditions may include: 10.1 Ambient temperature 10.2 Humidity level

VARIABLE	RANGE
	10.3 Cleanliness or contamination risk 10.4 Time of day or shift schedule
11. Standard operating procedures (SOPs)	Standard operating procedures (SOPs) may include: 11.1 Validated internal documentation 11.2 Defined roles and responsibilities 11.3 Step-by-step instructions for sampling
12. Traceability requirements	Traceability requirements may include: 12.1 Barcodes or QR codes 12.2 Batch or lot numbers 12.3 Sample identification codes 12.4 Name of sampler and date/time of sampling
13. Sample characteristics	Sample characteristics may include: 13.1 Representativeness 13.2 Integrity and completeness 13.3 Stability of physical and chemical properties 13.4 Compliance with acceptance criteria
14. Quality system standards	Quality system standards may include: 14.1 ISO 9001 – Quality Management Systems 14.2 ISO/IEC 17025 – Laboratory Competence 14.3 Good Laboratory Practice (GLP) 14.4 Internal quality management documentation
15. Sampling report	Sampling report may include: 15.1 Details of sampling activity 15.2 Observations during collection 15.3 Summary of findings 15.4 Submitted document following organizational format

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Planned sampling activities. 1.1.1 Identified sampling objectives. 1.1.2 Determined sampling scope. 1.1.3 Selected sampling methods. 1.1.4 Specified sampling quantity. 1.1.5 Prepared sampling plan. 1.2 Conducted sampling operations. 1.2.1 Selected sampling tools and sites. 1.2.2 Collected samples. 1.2.3 Labeled and recorded samples. 1.3 Reviewed sampling effectiveness. 1.3.1 Verified sample characteristics. 1.3.2 Validated sampling methods. 1.3.3 Completed sampling report.
2. Resource Implications	The following resources MUST be provided: 2.1 Sampling tools and equipment 2.2 Sampling sites 2.3 Data collection tools 2.4 Laboratory and quality assurance systems 2.5 Regulatory documents and standards 2.6 Traceability tools 2.7 Statistical and analysis software for sample size calculations and data analysis 2.8 Reporting tools for documenting sampling results and findings 2.9 Sampling protocols and standard operating procedures (SOPs) 2.10 Storage conditions for sample preservation 2.11 PPE (Personal Protective Equipment) for handling samples in controlled environments 2.12 Communication tools for reporting findings and coordinating with stakeholders
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration 3.3 Portfolio 3.4 Oral Questioning 3.5 Written Test
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions

UNIT OF COMPETENCY : FORMULATE LABORATORY SOLUTIONS

UNIT CODE : CS-AFF314302

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes required in formulating laboratory solutions. It includes preparing standard titration solutions, calibrating and labeling solutions, and maintaining solutions.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare standard titration solutions	1.1 ***Reagents*** are selected based on the required purity and compatibility with ***analytical methods***. 1.2 Solute quantities are calculated based on prescribed ***concentration formulas***. 1.3 Reagents are measured and mixed in accordance with ***laboratory protocols***. 1.4 ***Glassware and instruments*** are cleaned following industry practice.	**SCIENCE** 1.1 Product characteristics 1.2 Sampling representativeness and statistical significance 1.3 Variability of agricultural products and its impact on sampling **TECHNOLOGY** 1.4 Sampling tools and automated systems 1.5 Data collection software for monitoring sampling activities 1.6 Online and digital systems for organizing and tracking sampling plans **ENVIRONMENT AND OTHER RELATED LAWS** 1.7 Awareness on Philippine National Standards for agricultural product testing	1.1 Selecting reagents 1.2 Calculating solute quantities 1.3 Measuring and mixing reagents 1.4 Cleaning glassware and instruments

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		1.8 Compliance with Codex Alimentarius for food safety and quality standards 1.9 Regulatory standards and procedures for agricultural product sampling **MATHEMATICS** 1.10 Sample size calculation 1.11 Determination of sampling quantity for testing and retention 1.12 Probability and variance in sampling methods **COMMUNICATION** 1.13 Sampling plans 1.14 Sampling requirements 1.15 Protocols and procedures	
2. Calibrate and label prepared solutions	2.1 ***Titration solutions*** are calibrated based on validated and approved ***methods***. 2.2 ***Calibration data*** are recorded and verified based on accuracy requirements and documentation standards. 2.3 Solutions are labeled with required information in accordance with ***laboratory policies*** and ***safety standards***.	**SCIENCE** 2.1 Contamination risks and preventive measures in sampling 2.2 Physical and chemical properties of products that affect sample integrity 2.3 Environmental conditions affecting sample quality **TECHNOLOGY**	2.1 Calibrating titration solutions 2.2 Recording and verifying calibration data 2.3 Labeling solutions

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.4 Use of proper sampling tools 2.5 Barcoding or QR codes for sample traceability 2.6 Software for managing sample collection and tracking **ENVIRONMENT AND OTHER RELATED LAWS** 2.7 Good Laboratory Practices (GLP) for sample collection 2.8 Awareness on ISO/IEC 17025 for laboratory competence and sampling standards 2.9 Philippine National Standards **MATHEMATICS** 2.10 Calculation of sample sizes based on batch or lot size 2.11 Estimation of sample retention periods for re-testing 2.12 Measurement units in sample collection and labeling **COMMUNICATION** 2.13 Labeling samples with required identification details 2.14 Reporting findings during	

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		sampling operations 2.15 Potential issues related to contamination or sample integrity	
3. Maintain solutions	3.1 Titration solutions are stored based on designated environmental conditions and storage requirements. 3.2 Shelf life of titration solution is monitored following industry practice 3.3 Expired solutions are disposed according to safety procedures. 3.4 Solution inventory and usage logs are updated based on industry practice.	**SCIENCE** 3.1 Sample representativeness and integrity 3.2 Sample characteristics against testing criteria 3.3 Evaluation on the impact of sampling method on product testing accuracy **TECHNOLOGY** 3.4 Data analysis tools for evaluating sample quality and effectiveness 3.5 Using quality assurance systems to verify sampling processes 3.6 Tools for generating detailed reports on sampling operations **ENVIRONMENT AND OTHER RELATED LAWS** 3.7 Compliance with ISO 9001 (Quality Management Systems) for sampling validation 3.8 Adherence to ISO/IEC 17025 for laboratory and	3.1 Storing titration solutions 3.2 Monitoring shelf life of titration solution 3.3 Disposing expired solutions 3.4 Updating solution inventory and usage logs

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		sampling standards 3.9 Regulatory frameworks for product testing and sample management **MATHEMATICS** 3.10 Analysis on sample test results 3.11 Statistical methods for validating sample effectiveness 3.12 Calculation sampling error margins **COMMUNICATION** 3.13 Sampling reports 3.14 Sampling results and recommendations for improvement 3.15 Documentation on any deviations or issues encountered during sampling	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Reagents	Reagents may include: 1.1 Analytical-grade chemicals 1.2 Technical-grade chemicals 1.3 Reagents in solid or liquid form
2. Analytical methods	Analytical methods may include: 2.1 Acid-base titration 2.2 Redox titration 2.3 Other quantitative methods prescribed by laboratory protocols
3. Concentration formulas	Concentration formulas may include: 3.1 Molarity (mol/L) 3.2 Normality (eq/L) 3.3 Percent concentration
4. Laboratory protocols	Laboratory protocols may include: 4.1 Standard Operating Procedures (SOPs) for solution preparation 4.2 Safety and procedural instructions for measurement and mixing
5. Glassware and instruments	Glassware and instruments may include: 5.1 Volumetric flasks 5.2 Pipettes and burettes 5.3 Beakers 5.4 Analytical balances
6. Titration solutions	Titration solutions may include: 6.1 Standardized solutions with verified concentrations 6.2 Solutions used for quantitative chemical analysis
7. Methods	Methods may include: 7.1 Titration against primary standards 7.2 Use of certified reference solutions
8. Calibration data	Calibration data may include: 8.1 Measured concentration 8.2 Date of calibration 8.3 Initials of preparer 8.4 Equipment used
9. Laboratory policies	Laboratory policies may include: 9.1 Labeling format and documentation procedures 9.2 Safety compliance requirements 9.3 Solution validation timelines
10. Safety standards	Safety standards may include: 10.1 Chemical handling and disposal protocols 10.2 Use of PPE 10.3 Chemical hazard communication guidelines

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared standard titration solutions. 1.1.1 Selected reagents. 1.2.1 Calculated solute quantities. 1.3.1 Measured and mixed reagents. 1.4.1 Cleaned glassware and instruments. 1.2 Calibrated and labeled prepared solutions. 2.1.1 Calibrated titration solutions. 2.1.2 Recorded and verified calibration data. 2.1.3 Labeled solutions. 1.3 Maintained solutions. 3.1.1 Stored titration solutions. 3.2.1 Monitored shelf life. 3.3.1 Disposed expired solutions. 3.4.1 Updated solution inventory and usage logs.
2. Resource Implications	The following resources MUST be provided: 2.1 Reagents 2.2 Laboratory glassware and instruments 2.3 Titration solutions 2.4 Calibration methods and certified reference solutions for calibrating titration solutions 2.5 Laboratory protocols 2.6 Safety equipment and standards 2.7 Data collection and analysis tools 2.8 Cleaning and maintenance tools for glassware and instruments 2.9 Solution inventory management systems 2.10 Compliance and regulatory documents
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct observation 3.2 Performance demonstration 3.3 Portfolio assessment 3.4 Oral questioning 3.5 Written test
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions

UNIT OF COMPETENCY : CARRY-OUT MICROBIOLOGICAL AND CHEMICAL TESTS

UNIT CODE : CS-AFF314303

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes required in carrying-out microbiological and chemical tests. It includes conducting chemical analysis, conducting microbiological testing, and monitoring test validity and safety compliance.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Conduct chemical analysis	1.1 ***Test methods*** are selected based on ***product type*** and ***analysis requirements***. 1.2 ***Samples*** are prepared in accordance with established procedures and safety guidelines. 1.3 ***Laboratory instruments*** are operated following standard operation and calibration protocols. 1.4 ***Chemical parameters*** are determined based on validated ***analytical procedures***. 1.5 Test results are interpreted and compared with ***reference standards*** following industry practice.	**SCIENCE** 1.1 Chemical test methods 1.2 Chemical principles in titration, gravimetry, and colorimetry 1.3 Sample preparation methods and handling based on analysis requirements 1.4 Regulatory limits for chemical parameters in agricultural products **TECHNOLOGY** 1.5 Laboratory instruments used in chemical analysis 1.6 Calibration and operation of analytical instruments 1.7 Data collection and interpretation software for chemical testing **ENVIRONMENT AND OTHER RELATED LAWS**	1.1 Selecting test methods 1.2 Preparing samples 1.3 Operating laboratory instruments 1.4 Determining chemical parameters 1.5 Interpreting and comparing test results with reference standards

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		1.8 Awareness on RA 7394 (Consumer Act) – compliance in chemical testing for consumer safety 1.9 Safety standards in chemical testing 1.10 Regulatory requirements for chemical testing and waste disposal in laboratories **MATHEMATICS** 1.11 Calculation of concentrations 1.12 Data analysis for interpreting test results 1.13 Formula application in titrations and other chemical analyses **COMMUNICATION** 1.14 Sample preparation and analysis 1.15 Documentation on test results accurately 1.16 Discrepancies or issues with test outcomes	
2. Conduct microbiological testing	2.1 ***Microbial test methods*** are selected based on target organisms and regulatory criteria. 2.2 Sample ***dilutions and incubations*** are conducted following validated	**SCIENCE** 2.1 Common microorganisms of concern in agricultural products 2.2 Microbial growth media types and preparation methods	2.1 Selecting microbial test methods 2.2 Conducting sample dilutions and incubations 2.3 Interpreting colony counts or indicator readings

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	microbiological protocols. 2.3 ***Colony counts*** are interpreted according to ***test procedures***. 2.4 Microbiological findings are analyzed and reported based on validated results and reporting requirements.	2.3 Criteria for colony identification and enumeration 2.4 Sample dilution, inoculation, and incubation procedures in microbiological analysis **TECHNOLOGY** 2.5 Microbiological testing methods 2.6 Tools for microbiological testing 2.7 Software for recording and analyzing microbiological test results **ENVIRONMENT AND OTHER RELATED LAWS** 2.8 Awareness on Biosafety standards in handling microorganisms in the laboratory 2.9 Compliance with ISO/IEC 17025 for laboratory competence 2.10 Awareness on RA 7394 (Consumer Act) – ensuring food safety in microbiological testing **MATHEMATICS** 2.11 Calculation on microbial colony counts or indicator readings	2.4 Analyzing and reporting microbiological findings

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.12 Determination of sample dilution factors for microbiological analysis 2.13 Statistical methods for analyzing microbiological test results **COMMUNICATION** 2.14 Reports on microbial findings 2.15 Communication on microbial risks and findings	
3. Monitor test validity and safety compliance	3.1 Testing procedures are verified in accordance with laboratory ***quality assurance systems***. 3.2 ***Test observations and results*** are documented following industry practice. 3.3 ***Personal protective equipment*** are used following industry practice. 3.4 ***Hygiene practices*** are maintained throughout testing activities following industry practice.	**SCIENCE** 3.1 Quality assurance systems for laboratory testing 3.2 Ethical handling of test data and confidentiality 3.3 Safety compliance standards in laboratory testing environments **TECHNOLOGY** 3.4 Documentation tools for recording test observations and results 3.5 Laboratory management systems for verifying test compliance 3.6 Calibration and validation tools for ensuring accuracy in testing	3.1 Verifying test procedures 3.2 Documenting results test observations and results 3.3 Using PPE 3.4 Maintaining hygiene practices

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		ENVIRONMENT AND OTHER RELATED LAWS 3.7 Awareness on ISO 9001 (Quality Management Systems) for laboratory practices and testing protocols 3.8 Awareness on RA 10173 (Data Privacy Act) – handling and confidentiality of test data 3.9 Awareness on RA 7394 (Consumer Act) – ensuring safety and quality in testing procedure **MATHEMATICS** 3.10 Statistical tools for validating test results and ensuring accuracy 3.11 Analysis of test variation and error margins in laboratory testing 3.12 Performance tracking of laboratory equipment calibration **COMMUNICATION** 3.13 Documentation and reporting of test procedures and results 3.14 Reports on test validity and quality	

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		assurance outcomes	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Test methods	Test methods may include: 1.1 Titration 1.2 Gravimetric analysis 1.3 Spectrophotometric analysis 1.4 Enzymatic methods 1.5 Colorimetric analysis 1.6 Plate count method 1.7 Most Probable Number (MPN) 1.8 Membrane filtration 1.9 Rapid test kits
2. Product type	Product type may include: 2.1 Raw agricultural products 2.2 Processed food items 2.3 Liquid samples 2.4 Dry goods
3. Analysis requirements	Analysis requirements may include: 3.1 Regulatory limits 3.2 Internal quality specifications 3.3 Product safety parameters 3.4 Target components such as protein, fat, peroxide value, reducing sugar, and microbial load
4. Samples	Samples may include: 4.1 Solid or liquid test portions 4.2 Prepared according to standard operating procedures 4.3 Handled under safety protocols
5. Laboratory instruments	Laboratory instruments may include: 5.1 Spectrophotometers 5.2 pH meters 5.3 Analytical balances 5.4 Incubators 5.5 Autoclaves
6. Chemical parameters	Chemical parameters may include: 6.1 Protein 6.2 Fat 6.3 Peroxide value 6.4 Reducing sugar
7. Analytical procedures	Analytical procedures may include: 7.1 Validated test protocols 7.2 Documented standard operating procedures 7.3 Repeatability and accuracy assurance steps
8. Reference standards	Reference standards may include: 8.1 Codex Alimentarius 8.2 Philippine National Standards (PNS) 8.3 AOAC methods 8.4 Internal company benchmarks

VARIABLE	RANGE
9. Microbial test methods	Microbial test methods may include: 9.1 Total aerobic plate count 9.2 Coliform detection 9.3 Yeast and mold count 9.4 Indicator organism enumeration
10. Dilutions and incubations	Dilutions and incubations may include: 10.1 Serial dilutions using sterile diluents 10.2 Incubation at prescribed temperature and time 10.3 Use of calibrated incubators and aseptic techniques
11. Colony counts	Colony counts may include: 11.1 Colony Forming Units (CFU) 11.2 Presence/absence detection 11.3 MPN interpretation using standard tables
12. Test procedures	Test procedures may include: 12.1 Sample preparation 12.2 Execution of test protocols 12.3 Post-analysis cleanup and data logging
13. Quality assurance systems	Quality assurance systems may include: 13.1 ISO 17025 compliance 13.2 Internal QA protocols 13.3 Good Laboratory Practices (GLP)
14. Test observations and results	Test observations and results may include: 14.1 Qualitative results 14.2 Quantitative results 14.3 Clear and unaltered documentation
15. Personal protective equipment (PPE)	Personal protective equipment (PPE) may include: 15.1 Gloves 15.2 Lab coats 15.3 Face masks 15.4 Safety goggles
16. Hygiene practices	Hygiene practices may include: 16.1 Handwashing before and after procedures 16.2 Surface disinfection 16.3 Proper disposal of waste and contaminated materials

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Conducted chemical analysis. 1.1.1 Selected test methods. 1.1.2 Prepared samples. 1.1.3 Operated laboratory instruments. 1.1.4 Determined chemical parameters. 1.1.5 Interpreted and compared test results. 1.2 Conducted microbiological testing. 1.2.1 Selected microbial test methods. 1.2.2 Conducted sample dilutions and incubations. 1.2.3 Interpreted colony counts or indicator readings. 1.2.4 Analyzed microbiological findings. 1.3 Monitored test validity and safety compliance. 1.3.1 Verified testing procedures. 1.3.2 Documented test observations and results. 1.3.3 Used personal protective equipment. 1.3.4 Maintained hygiene practices.
2. Resource Implications	The following resources MUST be provided: 2.1 Laboratory instruments 2.2 Microbial testing tools 2.3 Chemical and microbiological reagents 2.4 Safety and protective equipment 2.5 Personal protective equipment (PPE) 2.6 Data collection tools 2.7 Standard Operating Procedures (SOPs) and industry protocols for conducting chemical and microbiological tests 2.8 Test sample collection and handling materials 2.9 Waste disposal systems for chemical and biological waste 2.10 Calibration tools for laboratory equipment 2.11 Regulatory documents
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct observation 3.2 Performance demonstration 3.3 Portfolio assessment 3.4 Oral questioning 3.5 Written test
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions

GLOSSARY OF TERMS

1) Analytical Method	A validated scientific procedure used to detect, quantify, or examine the presence of substances in food or agricultural samples.
2) Calibration	The process of configuring laboratory instruments to provide accurate measurements by comparing against a known standard.
3) Contamination	The unintended presence of harmful substances (chemical, biological, or physical) in a sample that may affect test results or food safety.
4) Glassware	Laboratory containers made of glass (e.g., beakers, flasks, pipettes) used for handling and measuring liquids during testing procedures.
5) Microbiological Testing	The analysis of food or product samples to detect and quantify microorganisms such as bacteria, yeasts, or molds.
6) Personal Protective Equipment (PPE)	Specialized clothing or equipment (e.g., gloves, goggles, lab coats) worn by laboratory personnel to protect against hazards.
7) Quality Assurance (QA)	A system of planned and systematic activities that ensure laboratory processes and results meet predefined standards of accuracy and reliability.
8) Sampling Plan	A documented strategy that defines how, where, and how much of a product should be sampled to ensure it represents the whole batch or lot.
9) Shelf Life	The period during which a solution, reagent, or product remains effective, stable, and safe to use under specified storage conditions.
10) Standard Titration Solution	A chemical solution with a precisely known concentration, used in titration to determine the amount of an unknown substance.
11) Traceability	The ability to track the history, application, and location of a sample or product throughout all stages of handling and testing.
12) Titration	A quantitative chemical analysis technique used to determine the concentration of a known reactant in a solution.

ACKNOWLEDGEMENTS

The Technical Education and Skills Development Authority (TESDA) is particularly grateful for the valuable technical support provided by the following industry stakeholders for the review and development of this Competency Standards. The time and inputs generously given during this undertaking are also highly appreciated and recognized as they made significant contributions to the constitution of this CS.

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