COMPETENCY STANDARDS

FARM EQUIPMENT FABRICATION
(PRECISION RICE SEEDER)
LEVEL II

METALS AND ENGINEERING SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

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

Section 22, "Establishment and Administration of the National Trade Skills Standards" of RA 7796 known as the TESDA Act of 1994 mandates TESDA to establish national occupational skill standards. The Authority shall develop and implement a certification and accreditation program in which private industry groups 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.

The Competency Standards (CS) serve as basis for the:

1 Institutional Competency assessment and training certification;
2 Registration and delivery of training programs; and
3 Development of curriculum and assessment instruments.

Each CS has two sections:

Section 1 Definition of **Competency Standards** - refers to the group of competencies that describes the different functions of the qualification.

Section 2 The Competency Standards - gives the specifications of competencies required for effective work performance.

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FARM EQUIPMENT PRODUCTIONFABRICATION (RICE PRECISION SEEDER)
QUALIFICATION CODE: ABMEEFEF0203114821324

COMPETENCY STANDARDS FOR
FARM EQUIPMENT FABRICATION (RICE PRECISION SEEDER) LEVEL II

SECTION 1 FARM EQUIPMENT FABRICATION (RICE PRECISION SEEDER) LEVEL II QUALIFICATION DESCRIPTION

The **FARM EQUIPMENT FABRICATION (PRECISION RICE SEEDER)** Competency Standard consists of competencies that a person must achieve in securing design and planning services, turning workpiece (Basic), assembling farm equipment parts and accessories and inspecting and testing farm equipment.

The units of competency comprising this qualification include the following:

Code	**BASIC COMPETENCIES**
400311210	Participate in workplace communication
400311211	Work in team environment
400311212	Solve/address general workplace problems
400311213	Develop career and life decisions
400311214	Contribute to workplace innovation
400311215	Present relevant information
400311216	Practice occupational safety and health policies and procedures
400311217	Exercise efficient and effective sustainable practices in the workplace
400311218	Practice entrepreneurial skills in the workplace
Code	**COMMON COMPETENCIES**
MEE722201	Apply Safety Practices
MEE721202	Interpret Drawings and Sketches
MEE721210	Perform Basic Workshop Measurements & Computations
MEE721211	Contribute to Quality Management System (QMS)
MEE721205	Use Hand Tools
Code	**CORE COMPETENCIES**
ABMEE0203114821301	Secure Design and Planning Services
MEE722302	Turn workpiece (Basic)
ABMEE0203114821303	Assemble Farm Equipment Parts and Accessories
ABMEE0203114821304	Inspect and Test Farm Equipment

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

- Farm Equipment Fabricator/Assembler of Precision Rice Seeder

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 **FARM EQUIPMENT FABRICATION (PRECISION RICE SEEDER)**

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 400311210

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to gather, interpret, and convey information in response to workplace requirements.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources***. 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information. 1.3 Appropriate ***medium*** is used to transfer information and ideas. 1.4 Appropriate non-verbal communication is used. 1.5 Appropriate lines of communication with supervisors and colleagues are	1.1 Effective verbal and nonverbal communication 1.2 Different modes of communication 1.3 Medium of communication in the workplace 1.4 Organizational policies 1.5 Communication procedures and systems 1.6 Lines of Communication 1.7 Technology relevant to the enterprise and the individual's work responsibilities 1.8 Workplace etiquette	1.1 Following simple spoken language 1.2 Performing routine workplace duties following simple written notices 1.3 Participating in workplace meetings and discussions 1.4 Preparing work-related documents 1.5 Estimating, calculating and recording routine workplace measures 1.6 Relating/ Interacting with people of various levels in the workplace

	identified and followed. 1.6 Defined workplace procedures for the location and ***storage*** of information are used. 1.7 Personal interaction is carried out clearly and concisely.		1.7 Gathering and providing basic information in response to workplace requirements 1.8 Basic business writing skills 1.9 Interpersonal skills in the workplace 1.10 Active-listening skills
2. Perform duties following workplace instructions	2.1 Written notices and instructions are read and interpreted in accordance with organizational guidelines. 2.2 Routine written instruction are followed based on established procedures. 2.3 Feedback is given to workplace supervisor based instructions/ information received. 2.4 ***Workplace interactions*** are conducted in a courteous manner. 2.5 Where necessary, clarifications about routine workplace procedures and matters concerning conditions of employment are sought and asked from ***appropriate sources***. 2.6 Meetings outcomes are interpreted and implemented.	2.1 Effective verbal and non-verbal communication 2.2 Different modes of communication 2.3 Medium of communication in the workplace 2.4 Organizational/ Workplace policies 2.5 Communication procedures and systems 2.6 Lines of communication 2.7 Technology relevant to the enterprise and the individual's work responsibilities 2.8 Effective questioning techniques (clarifying and probing) 2.9 Workplace etiquette	2.1 Following simple spoken instructions 2.2 Performing routine workplace duties following simple written notices 2.3 Participating in workplace meetings and discussions 2.4 Completing work- related documents 2.5 Estimating, calculating and recording routine workplace measures 2.6 Relating/ Responding to people of various levels in the workplace 2.7 Gathering and providing information in response to workplace requirements 2.8 Basic questioning/querying 2.9 Skills in reading for information

			2.10 Skills in locating
3. Complete relevant work- related documents	3.1 Range of ***forms*** relating to conditions of employment are completed accurately and legibly. 3.2 Workplace data is recorded on standard workplace forms and documents. 3.3 Errors in recording information on forms/ documents are identified and acted upon. 3.4 Reporting requirements to supervisor are completed according to organizational guidelines.	3.1 Effective verbal and non-verbal communication 3.2 Different modes of communication 3.3 Workplace forms and documents 3.4 Organizational/ Workplace policies 3.5 Communication procedures and systems 3.6 Technology relevant to the enterprise and the individual's work responsibilities	3.1 Completing work- related documents 3.2 Applying operations of addition, subtraction, division and multiplication 3.3 Gathering and providing information in response to workplace requirements 3.4 Effective record keeping skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate sources	May include: 1.1 Team members 1.2 Supervisor/Department Head 1.3 Suppliers 1.4 Trade personnel 1.5 Local government 1.6 Industry bodies
2. Medium	May include: 2.1 Memorandum 2.2 Circular 2.3 Notice 2.4 Information dissemination 2.5 Follow-up or verbal instructions 2.6 Face-to-face communication 2.7 Electronic media (disk files, cyberspace)
3. Storage	May include: 3.1 Manual filing system 3.2 Computer-based filing system
4. Workplace interactions	May include: 4.1 Face-to-face 4.2 Telephone 4.3 Electronic and two-way radio 4.4 Written including electronic means, memos, instruction and forms 4.5 Non-verbal including gestures, signals, signs and diagrams
5. Forms	May include: 5.1 HR/Personnel forms, telephone message forms, safety reports

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Prepared written communication following standard format of the organization 1.2 Accessed information using workplace communication equipment/systems 1.3 Made use of relevant terms as an aid to transfer information effectively 1.4 Conveyed information effectively adopting formal or informal communication
2. Resource Implications	**The following resources should be provided:** 2.1 Fax machine 2.2 Telephone 2.3 Notebook 2.4 Writing materials 2.5 Computer with Internet connection
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Demonstration with oral questioning 3.2 Interview 3.3 Written test 3.4 Third-party report
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or through an accredited institution

UNIT OF COMPETENCY : WORK IN A TEAM ENVIRONMENT

UNIT CODE : 400311211

UNIT DESCRIPTOR : This unit covers the skills, knowledge, and attitudes to identify one's roles and responsibilities as a member of a team.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Describe team role and scope	1.1 The ***role and objective of the team*** is identified from available ***sources of information***. 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources.	1.1 Group structure 1.2 Group development 1.3 Sources of information	1.1 Communicating with others, appropriately consistent with the culture of the workplace 1.2 Developing ways in improving work structure and performing respective roles in the group or organization
2. Identify one's role and responsibility within a team	2.1 Individual roles and responsibilities within the team environment are identified. 2.2 Roles and objectives of the team is identified from available ***sources of information***. 2.3 Team parameters, reporting relationships and responsibilities are identified based on team discussions and appropriate external sources.	2.1 Team roles and objectives 2.2 Team structure and parameters 2.3 Team development 2.4 Sources of information	2.1 Communicating with others, appropriately consistent with the culture of the workplace 2.2 Developing ways in improving work structure and performing respective roles in the group or organization
3. Work as a team member	3.1 Effective and appropriate forms	3.1 Communication Process	3.1 Communicating appropriately,

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	of communications are used and interactions undertaken with team members based on company practices. 3.2 Effective and appropriate contributions made to complement team activities and objectives, based on ***workplace context***. 3.3 Protocols in reporting are observed based on standard company practices. 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives.	3.2 Workplace communication protocol 3.3 Team planning and decision making 3.4 Team thinking 3.5 Team roles 3.6 Process of team development 3.7 Workplace context	consistent with the culture of the workplace 3.2 Interacting effectively with others 3.3 Deciding as an individual and as a group using group think strategies and techniques 3.4 Contributing to Resolution of issues and concerns

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	May include: 1.1 Work activities in a team environment with enterprise or specific sector 1.2 Limited discretion, initiative and judgement maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	May include: 2.1 Standard operating and/or other workplace procedures 2.2 Job procedures 2.3 Machine/equipment manufacturer's specifications and instructions 2.4 Organizational or external personnel 2.5 Client/supplier instructions 2.6 Quality standards 2.7 OHS and environmental standards
3. Workplace context	May include: 3.1 Work procedures and practices 3.2 Conditions of work environments 3.3 Legislation and industrial agreements 3.4 Standard work practice including the storage, safe handling and disposal of chemicals 3.5 Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Worked in a team to complete workplace activity 1.2 Worked effectively with others 1.3 Conveyed information in written or oral form 1.4 Selected and used appropriate workplace language 1.5 Followed designated work plan for the job
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 Role play involving the participation of individual member to the attainment of organizational goal 3.2 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork 3.3 Socio-drama and socio-metric methods 3.4 Sensitivity techniques 3.5 Written Test
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 task are being undertaken whether individually or in group

UNIT OF COMPETENCY : **SOLVE/ADDRESS GENERAL WORKPLACE PROBLEMS**

UNIT CODE : **400311212**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to apply problem-solving techniques to determine the origin of problems and plan for their resolution. It also includes addressing procedural problems through documentation, and referral.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify routine problems	1.1 Routine ***problems or procedural problem*** areas are identified. 1.2 Problems to be investigated are defined and determined. 1.3 Current conditions of the problem are identified and documented.	1.1 Current industry hardware and software products and services 1.2 Industry maintenance, service and helpdesk practices, processes and procedures 1.3 Industry standard diagnostic tools 1.4 Malfunctions and resolutions	1.1 Identifying current industry hardware and software products and services 1.2 Identifying current industry maintenance, services and helpdesk practices, processes and procedures. 1.3 Identifying current industry standard diagnostic tools 1.4 Describing common malfunctions and resolutions. 1.5 Determining the root cause of a routine malfunction
2. Look for solutions to routine problems	2.1 Potential solutions to problem are identified. 2.2 Recommendations about possible solutions are	2.1 Current industry hardware and software products and services 2.2 Industry service and helpdesk	2.1 Identifying current industry hardware and software products and services

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	developed, ***documented***, ranked and presented to ***appropriate person*** for decision.	practices, processes and procedures 2.3 Operating systems 2.4 Industry standard diagnostic tools 2.5 Malfunctions and resolutions. 2.6 Root cause analysis	2.2 Identifying services and helpdesk practices, processes and procedures. 2.3 Identifying operating system 2.4 Identifying current industry standard diagnostic tools 2.5 Describing common malfunctions and resolutions. 2.6 Determining the root cause of a routine malfunction
3. Recommend solutions to problems	3.1 Implementation of solutions are ***planned***. 3.2 Evaluation of implemented solutions are planned. 3.3 Recommended solutions are documented and submit to appropriate person for confirmation.	3.1 Standard procedures 3.2 Documentation produce	3.1 Producing documentation that recommends solutions to problems 3.2 Following established procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Problems/Procedural Problem	May include: 1.1 Routine/non – routine processes and quality problems 1.2 Equipment selection, availability and failure 1.3 Teamwork and work allocation problem 1.4 Safety and emergency situations and incidents 1.5 Work-related problems outside of own work area
2. Appropriate person	May include: 2.1 Supervisor or manager 2.2 Peers/work colleagues 2.3 Other members of the organization
3. Document	May include: 3.1 Electronic mail 3.2 Briefing notes 3.3 Written report 3.4 Evaluation report
4. Plan	May include: 4.1 Priority requirements 4.2 Co-ordination and feedback requirements 4.3 Safety requirements 4.4 Risk assessment 4.5 Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Determine the root cause of a routine problem. 1.2 Identified solutions to procedural problems. 1.3 Produced documentation that recommends solutions to problems. 1.4 Followed established procedures. 1.5 Referred unresolved problems to support persons.
2. Resource Implications	2.1 Assessment will require access to a workplace over an extended period, or a suitable method of gathering evidence of operating ability over a range of situations.
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Case Formulation 3.2 Life Narrative Inquiry 3.3 Standardized test 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 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY : DEVELOP CAREER AND LIFE DECISIONS

UNIT CODE : 400311213

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes in managing one's emotions, developing reflective practice, and boosting self-confidence and developing self-regulation.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Manage one's emotion	1.1 ***Self-management strategies*** are identified. 1.2 Skills to work independently and to show initiative, to be conscientious, and persevering in the face of setbacks and frustrations are developed. 1.3 Techniques for effectively handling negative emotions and ***unpleasant situation*** in the workplace are examined.	1.1 Self-management strategies that assist in regulating behavior and achieving personal and learning goals (e.g. Nine self-management strategies according to Robert Kelley) 1.2 Enablers and barriers in achieving personal and career goals 1.3 Techniques in handling negative emotions and unpleasant situation in the workplace such as frustration, anger, worry, anxiety, etc.	1.1 Managing properly one's emotions and recognizing situations that cannot be changed and accept them and remain professional 1.2 Developing self-discipline, working independently and showing initiative to achieve personal and career goals 1.3 Showing confidence, and resilience in the face of setbacks and frustrations and other negative emotions and unpleasant situations in the workplace
2. Develop reflective practice	2.1 Personal strengths and achievements, based on self-assessment strategies and	2.1 Basic SWOT analysis 2.2 Strategies to improve one's	2.1 Using the basic SWOT analysis as self-assessment strategy

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	teacher feedback are contemplated. 2.2 Progress when seeking and responding to feedback from teachers to assist them in consolidating strengths, addressing weaknesses and fulfilling their potential are monitored. 2.3 Outcomes of personal and academic challenges by reflecting on previous problem solving and decision making strategies and feedback from peers and teachers are predicted.	attitude in the workplace 2.3 Gibbs' Reflective Cycle/Model (Description, Feelings, Evaluation, Analysis, Conclusion, and Action plan)	2.2 Developing reflective practice through realization of limitations, likes/ dislikes; through showing of self-confidence 2.3 Demonstrating self-acceptance and being able to accept challenges
3. Boost self-confidence and develop self-regulation	3.1 Efforts for continuous self-improvement are demonstrated. 3.2 Counter-productive tendencies at work are eliminated. 3.3 Positive outlook in life are maintained.	3.1 Four components of self-regulation based on Self-Regulation Theory (SRT) 3.2 Personality development concepts 3.3 Self-help concepts (e. g., 7 Habits by Stephen Covey, transactional analysis, psycho-spiritual concepts)	3.1 Performing effective communication skills – reading, writing, conversing skills 3.2 Showing affective skills – flexibility, adaptability, etc. 3.3 Self-assessment for determining one's strengths and weaknesses

RANGE OF VARIABLES

VARIABLE	RANGE
1. Self-management strategies	May include: 1.1 Seeking assistance in the form of job coaching or mentoring 1.2 Continuing dialogue to tackle workplace grievances 1.3 Collective negotiation/bargaining for better working conditions 1.4 Share your goals to improve with a trusted co-worker or supervisor 1.5 Make a negativity log of every instance when you catch yourself complaining to others 1.6 Make lists and schedules for necessary activities
2. Unpleasant situation	May include: 2.1 Job burn-out 2.2 Drug dependence 2.3 Sulking

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Express emotions appropriately 1.2 Work independently and show initiative 1.3 Consistently demonstrate self-confidence and self-discipline
2. Resource Implications	**The following resources should be provided:** 2.1 Access to workplace and resource s 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 work improvement and sustainability 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 : CONTRIBUTE TO WORKPLACE INNOVATION

UNIT CODE : 400311214

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to make a pro-active and positive contribution to workplace innovation.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify opportunities to do things better	1.1 ***Opportunities for improvement*** are identified proactively in own area of work. 1.2 ***Information*** are gathered and reviewed which may be relevant to ideas and which might assist in gaining support for idea.	1.1 Roles of individuals in suggesting and making improvements 1.2 Positive impacts and challenges in innovation 1.3 Types of changes and responsibility 1.4 Seven habits of highly effective people	1.1 Identifying opportunities to improve and to do things better. Involvement 1.2 Identifying the positive impacts and the challenges of change and innovation 1.3 Identifying examples of the types of changes that are within and outside own scope of responsibility
2. Discuss and develop ideas with others	2.1 ***People who could provide input*** to ideas for improvements are identified. 2.2 Ways of approaching people to begin sharing ideas are selected. 2.3 Meeting is set with relevant people. 2.4 Ideas for follow up are review and selected based on feedback. 2.5 ***Critical inquiry method*** is used to	2.1 Roles of individuals in suggesting and making improvements 2.2 Positive impacts and challenges in innovation 2.3 Types of changes and responsibility 2.4 Seven habits of highly effective people	2.1 Identifying opportunities to improve and to do things better. Involvement 2.2 Identifying the positive impacts and the challenges of change and innovation 2.3 Providing examples of the types of changes that are within and outside own

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	discuss and develop ideas with others.		scope of responsibility 2.4 Communicating ideas for change through small group discussions and meetings
3. Integrate ideas for change in the workplace	3.1 Critical inquiry method is used to integrate different ideas for change of key people. 3.2 Summarizing, analyzing and generalizing skills are used to extract salient points in the pool of ideas. 3.3 ***Reporting skills*** are likewise used to communicate results. 3.4 ***Current Issues and concerns*** on the systems, processes and procedures, as well as the need for simple innovative practices are identified.	3.1 Roles of individuals in suggesting and making improvements 3.2 Positive impacts and challenges in innovation 3.3 Types of changes and responsibility 3.4 Seven habits of highly effective people 3.5 Basic research skills	3.1 Identifying opportunities to improve and to do things better. Involvement 3.2 Identifying the positive impacts and the challenges of change and innovation 3.3 Providing examples of the types of changes that are within and outside own scope of responsibility 3.4 Communicating ideas for change through small group discussions and meetings 3.5 Demonstrating skills in analysis and interpretation of data

RANGE OF VARIABLES

VARIABLE	RANGE
1. Opportunities for improvement	May include: 1.1 Systems 1.2 Processes 1.3 Procedures 1.4 Protocols 1.5 Codes 1.6 Practices
2. Information	May include: 2.1 Workplace communication problems 2.2 Performance evaluation results 2.3 Team dynamics issues and concerns 2.4 Challenges on return of investment 2.5 New tools, processes and procedures 2.6 New people in the organization
3. People who could provide input	May include: 3.1 Leaders 3.2 Managers 3.3 Specialists 3.4 Associates 3.5 Researchers 3.6 Supervisors 3.7 Staff 3.8 Consultants (external) 3.9 People outside the organization in the same field or similar expertise/industry 3.10 Clients
4. Critical inquiry method	May include: 4.1 Preparation 4.2 Discussion 4.3 Clarification of goals 4.4 Negotiate towards a Win-Win outcome 4.5 Agreement 4.6 Implementation of a course of action 4.7 Effective verbal communication. See our pages: Verbal Communication and Effective Speaking 4.8 Listening 4.9 Reducing misunderstandings is a key part of effective negotiation 4.10 Rapport Building 4.11 Problem Solving 4.12 Decision Making 4.13 Assertiveness

VARIABLE	RANGE
	4.14 Dealing with Difficult Situations
5. Reporting skills	May include: 5.1 Data management 5.2 Coding 5.3 Data analysis and interpretation 5.4 Coherent writing 5.5 Speaking

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Identified opportunities to do things better. 1.2 Discussed and developed ideas with others on how to contribute to workplace innovation. 1.3 Integrated ideas for change in the workplace. 1.4 Analyzed and reported rooms for innovation and learning in the workplace.
2. Resource Implications	**The following resources should be provided:** 2.1 Pens, papers and writing implements 2.2 Cartolina 2.3 Manila papers
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Psychological and behavioral Interviews 3.2 Performance Evaluation 3.3 Life Narrative Inquiry 3.4 Review of portfolios of evidence and third-party workplace reports of on-the-job performance 3.5 Sensitivity analysis 3.6 Organizational analysis 3.7 Standardized assessment of character strengths and virtues applied
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 : PRESENT RELEVANT INFORMATION

UNIT CODE : 400311215

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to present data/information appropriately.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Gather data/ information	1.1 Evidence, facts and information are collected. 1.2 Evaluation, terms of reference and conditions are reviewed to determine whether data/information falls within project scope.	1.1 Organizational protocols 1.2 Confidentiality 1.3 Accuracy 1.4 Business mathematics and statistics 1.5 Data analysis techniques/procedures 1.6 Reporting requirements to a range of audiences 1.7 Legislation, policy and procedures relating to the conduct of evaluations 1.8 Organizational values, ethics and codes of conduct	1.1 Describing organizational protocols relating to client liaison 1.2 Protecting confidentiality 1.3 Describing accuracy 1.4 Computing business mathematics and statistics 1.5 Describing data analysis techniques/ procedures 1.6 Reporting requirements to a range of audiences 1.7 Stating legislation, policy and procedures relating to the conduct of evaluations 1.8 Stating organizational values, ethics and codes of conduct
2. Assess gathered data/ information	2.1 Validity of data/ information is assessed. 2.2 Analysis techniques are applied to	2.1 Business mathematics and statistics	2.1 Computing business mathematics and statistics

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	assess data/ information. 2.3 Trends and anomalies are identified. 2.4 Data ***analysis techniques*** and procedures are documented. 2.5 Recommendations are made on areas of possible improvement.	2.2 Data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Legislation, policy and procedures relating to the conduct of evaluations 2.5 Organizational values, ethics and codes of conduct	2.2 Describing data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Stating legislation, policy and procedures relating to the conduct of evaluations 2.5 Stating organizational values, ethics and codes of conduct
3. Record and present information	3.1 Studied data/information are recorded. 3.2 Recommendations are analyzed for action to ensure they are compatible with the project's scope and terms of reference. 3.3 Interim and final reports are analyzed, and outcomes are compared to the criteria established at the outset. 3.4 Findings are presented to stakeholders.	3.1 Data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Legislation, policy and procedures relating to the conduct of evaluations 3.4 Organizational values, ethics and codes of conduct	3.1 Describing data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Stating legislation, policy and procedures relating to the conduct of evaluations 3.4 Stating organizational values, ethics and codes of conduct practices

RANGE OF VARIABLES

VARIABLE	RANGE
1. Data analysis techniques	May include: 1.1 Domain analysis 1.2 Content analysis 1.3 Comparison technique

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Determine data / information 1.2 Studied and applied gathered data/information 1.3 Recorded and studied data/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 3.3 Portfolio 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 workplaces, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY : **PRACTICE OCCUPATIONAL SAFETY AND HEALTH POLICIES AND PROCEDURES**

UNIT CODE : **400311216**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to identify OSH compliance requirements, prepare OSH requirements for compliance, perform tasks in accordance with relevant OSH policies and procedures.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify OSH compliance requirements	1.1 Relevant ***OSH requirements, regulations, policies and procedures*** are identified in accordance with workplace policies and procedures. 1.2 OSH activity non-conformities are conveyed to ***appropriate personnel***. 1.3 ***OSH preventive and control requirements*** are identified in accordance with OSH work policies and procedures.	1.1 OSH preventive and control requirements 1.2 Hierarchy of Controls 1.3 Hazard Prevention and Control 1.4 General OSH principles 1.5 Work standards and procedures 1.6 Safe handling procedures of tools, equipment and materials 1.7 Standard emergency plan and procedures in the workplace	1.1 Communication skills 1.2 Interpersonal skills 1.3 Critical thinking skills 1.4 Observation skills
2. Prepare OSH requirements for compliance	2.1 OSH work activity material, tools and equipment requirements are identified in accordance with workplace policies and procedures. 2.2 Required OSH materials, tools and equipment are	2.1 Resources necessary to execute hierarchy of controls 2.2 General OSH principles 2.3 Work standards and procedures 2.4 Safe handling procedures of	2.1 Communication skills 2.2 Estimation skills 2.3 Interpersonal skills 2.4 Critical thinking skills 2.5 Observation skills 2.6 Material, tool and equipment

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	acquired in accordance with workplace policies and procedures. 2.3 Required OSH materials, tools and equipment are arranged/ placed in accordance with OSH work standards.	tools, equipment and materials 2.5 Different OSH control measures	identification skills
3. Perform tasks in accordance with relevant OSH policies and procedures	3.1 Relevant OSH work procedures are identified in accordance with workplace policies and procedures. 3.2 Work Activities are executed in accordance with OSH work standards. 3.3 ***Non-compliance work activities*** are reported to appropriate personnel.	3.1 OSH work standards 3.2 Industry related work activities 3.3 General OSH principles 3.4 OSH Violations Non-compliance work activities	3.1 Communication skills 3.2 Interpersonal skills 3.3 Troubleshooting skills 3.4 Critical thinking skills 3.5 Observation skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. OSH Requirements, Regulations, Policies and Procedures	May include: 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Permit to Operate 1.6 Philippine Occupational Safety and Health Standards 1.7 Department Order No. 13 (Construction Safety and Health) 1.8 ECC regulations
2. Appropriate Personnel	May include: 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself
3. OSH Preventive and Control Requirements	May include: 3.1 Resources needed for removing hazard effectively 3.2 Resources needed for substitution or replacement 3.3 Resources needed to establishing engineering controls 3.4 Resources needed for enforcing administrative controls 3.5 Personal Protective equipment
4. Non OSH-Compliance Work Activities	May include non-compliance or observance of the following safety measures: 4.1 Violations that may lead to serious physical harm or death 4.2 Fall Protection 4.3 Hazard Communication 4.4 Respiratory Protection 4.5 Power Industrial Trucks 4.6 Lockout/Tag-out 4.7 Working at heights (use of ladder, scaffolding) 4.8 Electrical Wiring Methods

VARIABLE	RANGE
	4.9 Machine Guarding 4.10 Electrical General Requirements 4.11 Asbestos work requirements 4.12 Excavations work requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Convey OSH work non-conformities to appropriate personnel 1.2 Identify OSH preventive and control requirements in accordance with OSH work policies and procedures 1.3 Identify OSH work activity material, tools and equipment requirements in accordance with workplace policies and procedures 1.4 Arrange/Place required OSH materials, tools and equipment in accordance with OSH work standards 1.5 Execute work activities in accordance with OSH work standards 1.6 Report OSH activity non-compliance work activities to appropriate personnel
2. Resource Implications	**The following resources should be provided:** 2.1 Facilities, materials tools and equipment necessary for the activity
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Observation/Demonstration with oral questioning 3.2 Third party report
4. Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : **EXERCISE EFFICIENT AND EFFECTIVE SUSTAINABLE PRACTICES IN THE WORKPLACE**

UNIT CODE : **400311217**

UNIT DESCRIPTOR : This unit covers knowledge, skills and attitude to identify the efficiency and effectiveness of resource utilization, determine causes of inefficiency and/or ineffectiveness of resource utilization and Convey inefficient and ineffective environmental practices.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify the efficiency and effectiveness of resource utilization	1.1 Required resource utilization in the workplace is measured using appropriate techniques. 1.2 Data are recorded in accordance with workplace protocol. 1.3 Recorded data are compared to determine the efficiency and effectiveness of resource utilization according to established ***environmental work procedures***.	1.1 Importance of Environmental Literacy 1.2 Environmental Work Procedures 1.3 Waste Minimization 1.4 Efficient Energy Consumptions	1.1 Recording Skills 1.2 Writing Skills 1.3 Innovation Skills
2. Determine causes of inefficiency and/or ineffectiveness of resource utilization	2.1 Potential causes of inefficiency and/or ineffectiveness are listed. 2.2 Causes of inefficiency and/or ineffectiveness are identified through deductive reasoning. 2.3 Identified causes of inefficiency and/or	2.1 Causes of environmental inefficiencies and ineffectiveness	2.1 Deductive Reasoning Skills 2.2 Critical thinking 2.3 Problem Solving 2.4 Observation Skills

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	ineffectiveness are validated thru established environmental procedures.		
3. Convey inefficient and ineffective environmental practices	3.1 Efficiency and effectiveness of resource utilization are reported to ***appropriate personnel***. 3.2 Concerns related resource utilization are discussed with appropriate personnel. 3.3 Feedback on information/ concerns raised are clarified with appropriate personnel.	3.1 Appropriate Personnel to address the environmental hazards 3.2 Environmental corrective actions	3.1 Written and Oral Communication Skills 3.2 Critical thinking 3.3 Problem Solving 3.4 Observation Skills 3.5 Practice Environmental Awareness

RANGE OF VARIABLES

VARIABLE	RANGE
1. Environmental Work Procedures	May include: 1.1 Utilization of Energy, Water, Fuel Procedures 1.2 Waste Segregation Procedures 1.3 Waste Disposal and Reuse Procedures 1.4 Waste Collection Procedures 1.5 Usage of Hazardous Materials Procedures 1.6 Chemical Application Procedures 1.7 Labeling Procedures
2. Appropriate Personnel	May include: 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Measured required resource utilization in the workplace using appropriate techniques 1.2 Recorded data in accordance with workplace protocol 1.3 Identified causes of inefficiency and/or ineffectiveness through deductive reasoning 1.4 Validate the identified causes of inefficiency and/or ineffectiveness thru established environmental procedures 1.5 Report efficiency and effectiveness of resource utilization to appropriate personnel 1.6 Clarify feedback on information/concerns raised with appropriate personnel
2. Resource Implications	**The following resources should be provided:** 2.1 Workplace 2.2 Tools, materials and equipment relevant to the tasks 2.3 PPE 2.4 Manuals and references
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Demonstration 3.2 Oral questioning 3.3 Written examination
4. Context for Assessment	4.1 Competency assessment may occur in workplace or any appropriately simulated environment 4.2 Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT OF COMPETENCY : **PRACTICE ENTREPRENEURIAL SKILLS IN THE WORKPLACE**

UNIT CODE : **400311218**

UNIT DESCRIPTOR : This unit covers the outcomes required to apply entrepreneurial workplace best practices and implement cost-effective operations.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Apply entrepreneurial workplace best practices	1.1 ***Good practices*** relating to workplace operations are observed and selected following workplace policy. 1.2 Quality procedures and practices are complied with according to workplace requirements. 1.3 Cost-conscious habits in ***resource utilization*** are applied based on industry standards.	1.1 Workplace best practices, policies and criteria 1.2 Resource utilization 1.3 Ways in fostering entrepreneurial attitudes: ● Patience ● Honesty ● Quality-consciousness ● Safety-consciousness ● Resourcefulness	1.1 Communication skills 1.2 Complying with quality procedures
2. Communicate entrepreneurial workplace best practices	2.1 Observed good practices relating to workplace operations are communicated to the ***appropriate person.*** 2.2 Observed quality procedures and practices are communicated to appropriate person 2.3 Cost-conscious habits in resource utilization are communicated	2.1 Workplace best practices, policies and criteria 2.2 Resource utilization 2.3 Ways in fostering entrepreneurial attitudes: ● Patience ● Honesty ● Quality-consciousness ● Safety-consciousness ● Resourcefulness	2.1 Communication skills 2.2 Complying with quality procedures 2.3 Following workplace communication protocol

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	based on industry standards.		
3. Implement cost-effective operations	3.1 Preservation and optimization of workplace resources is implemented in accordance with enterprise policy 3.2 Judicious use of workplace tools, equipment and materials are observed according to manual and work requirements. 3.3 Constructive contributions to office operations are made according to enterprise requirements. 3.4 Ability to work within one's allotted time and finances is sustained.	3.1 Optimization of workplace resources 3.2 5S procedures and concepts 3.3 Criteria for cost-effectiveness 3.4 Workplace productivity 3.5 Impact of entrepreneurial mindset to workplace productivity 3.6 Ways in fostering entrepreneurial attitudes: ● Quality-consciousness ● Safety-consciousness	3.1 Implementing preservation and optimizing workplace resources 3.2 Observing judicious use of workplace tools, equipment and materials 3.3 Making constructive contributions to office operations 3.4 Sustaining ability to work within allotted time and finances

RANGE OF VARIABLES

VARIABLE	RANGE
1. Good practices	May include: 1.1 Economy in use of resources 1.2 Documentation of quality practices
2. Resources utilization	May include: 2.1 Consumption/ use of consumables 2.2 Use/Maintenance of assigned equipment and furniture 2.3 Optimum use of allotted /available time

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate:** 1.1 Demonstrated ability to identify and sustain cost-effective activities in the workplace 1.2 Demonstrated ability to practice entrepreneurial knowledge, skills and attitudes in the workplace.
2. Resource Implications	**The following resources should be provided:** 2.1 Simulated or actual workplace 2.2 Tools, materials and supplies needed to demonstrate the required tasks 2.3 References and manuals 2.3.1 Enterprise procedures manuals 2.3.2 Company quality policy
3. Methods of Assessment	**Competency in this unit should be assessed through:** 3.1 Interview 3.2 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 PRACTICES

UNIT CODE : MEE721201

UNIT DESCRIPTOR : This unit covers the competencies required to apply safety practices in the workplace.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify hazardous area	1.1 ***Hazards*** are identified correctly in accordance with OHS principles. 1.2 Safety signs and symbols are identified and adhered to.	1.2 Shop safety signs, symbols and alarms 1.2 Safety precautionary measures 1.3 Housekeeping 1.4 Machine tools 1.5 First aid 1.6 Engineering materials 1.7 Fire extinguishers	1.1 Operating machine tools 1.2 Handling tools and materials 1.3 Communicating with superiors and co-workers 1.4 Interpreting instructions
2. Use protective clothing and devices	2.1 Appropriate ***protective clothing and devices*** correctly selected and used in accordance with OHS requirements or industry/company policy	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 2.5 Environmental rules and regulations 2.6 Emergency procedures 2.7 Hazards identification and reporting 2.8 Communication skills 2.9 OSHS	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 2.5 Following emergency procedures 2.6 Identifying and reporting of hazards in workplace area.
3. Perform safe handling of	3.1 Safety procedures for pre-use check and operation of	3.1 Procedures of cleaning used tools and outfits	3.1 Cleaning used tools and outfit

tools, equipment and materials	tools and equipment followed in accordance with industry/ company policies. 3.2 Tools, equipment and materials handled safely in accordance with OHS requirements and industry/ company policies.	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	3.2 Labelling and storing unused materials 3.3 Disposing waste materials
4. Perform first aid	4.1 First aid treatment of ***injuries*** are carried out according to recommended procedures	4.1 Different types of injuries 4.2 First aid treatment of injuries	4.1 Performing treatment of injuries
5. Use fire extinguisher	5.1 Fire extinguisher selected and operated correctly according to the ***type of fire***.	5.1 Different engineering materials 5.2 Types of fire 5.3 Types of fire extinguishers	5.1 Using the fire extinguisher

RANGE OF VARIABLES

VARIABLE	RANGE
1. Hazards	1.1 Cluttered tools and materials 1.2 Slippery floors (caused by oil, grease or any liquid) 1.3 Exposed electrical wires 1.4 Sharp edges 1.5 Machine without guards or with exposed moving parts
2. Protective clothing and devices	Protective clothing and devices may include but is not limited to: 2.1 safety glasses/goggles 2.2 safety shoes 2.3 overalls 2.4 cap 2.5 gloves
3. Injuries	Injuries may include: 3.1 burns/scalds 3.2 fractures 3.3 cuts and abrasions 3.4 poisoning 3.5 foreign bodies in the eye 3.6 concussion 3.7 shock
4. Type of fires	Fires involving or caused by: 4.1 common combustibles (wood, cloth, paper, rubber and plastic) 4.2 flammable liquids (gasoline, oil, solvents, paints, etc.) 4.3 energized electrical equipment (wiring, fuse boxes, circuit breakers, appliances, etc. 4.4 combustible metals (magnesium, sodium, etc.)

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 identified hazardous area 1.2 used protective clothing and devices 1.3 handled tools, equipment and materials properly 1.4 performed first aid 1.5 used fire extinguisher
2. Resource Implications	The following resources must be provided 2.1 Tools, equipment and facilities appropriate to processes or activity 2.2 Materials relevant to the proposed activity
3. Method of Assessment	Competency must be assessed through: 3.1 Demonstration 3.2 Written or oral short answer questions 3.3 Practical exercises
4. Context of Assessment	Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY : **INTERPRET DRAWINGS AND SKETCHES**

UNIT CODE : **MEE721202**

UNIT DESCRIPTOR : This unit covers the competencies required to read and interpret drawings and sketches.

ELEMENTS	PERFORMANCE CRITERIA Italicized terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Interpret technical drawing	1.1 Dimensions identified as appropriate 1.2 Instructions identified and followed as required. 1.3 Material requirements identified as required. 1.4 Symbols recognized as appropriate in the ***drawing***/ sketch. 1.5 ***Tolerance***, limits and fits identified in the drawing.	1.1 Alphabet of lines 1.2 Projections 1.3 Drawing symbols 1.4 Dimensioning techniques 1.5 Tolerance, limits and fits 1.6 Engineering materials 1.7 Drawing tools and supplies 1.8 AWF-CWCS/ ISO 9606-1 / AWS D1.1 / ASME IX.	1.1 Identifying dimension 1.2 Identifying instruction 1.2 Identifying material 1.4 Recognizing symbols in the drawing 1.5 Identifying tolerance, limits and fits
2. Interpret details from freehand sketch	2.1 Dimensions identified as appropriate. 2.2 Instructions identified and followed as required. 2.3 Material requirements identified as required. 2.4 Symbols recognized as appropriate in the drawing.	2.1 Alphabet of lines 2.2 Projections 2.3 Drawing symbols 2.4 Dimensioning techniques 2.5 Tolerance, limits and fits 2.6 Engineering materials 2.7 Drawing tools and supplies 2.8 AWF-CWCS/ ISO 9606-1 / AWS D1.1 /	2.1 Identifying dimensions 2.2 Identifying instruction 2.3 Identifying material requirements 2.4 Recognizing symbols

		ASME IX.	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Drawing	Drawing technique include 1.1 Perspective 1.2 Exploded view 1.3 Hidden view technique Projections 1.4 First angle projections 1.5 Third angle projections
2. Tolerance	May include: 2.1 General tolerance 2.2 Groove angle 2.3 Root face 2.4 Root Opening

EVIDENCE GUIDE

1. Critical aspects of evidence	Assessment requires evidence that the candidate interpreted: 1.1 Drawings 1.2 Sketches.
2. Resource implications	The following resources must be provided: 2.1 Drawings or plans 2.2 Sketches 2.3 Measuring tools
3. Method of assessment	Competency must be assessed through: 3.1 Direct observation 3.2Written or oral short answer questions 3.3 Demonstration
4. Context for assessment	Competency may be assessed in the workplace or in simulated workplace environment or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY : **PERFORM BASIC WORKSHOP MEASUREMENTS AND COMPUTATIONS**

UNIT CODE : **MEE721210**

UNIT DESCRIPTOR : This unit covers the competencies required to perform proper measurement and simple calculations using the four fundamental operations.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Select and use measuring tools	1.1 ***Measuring tools*** are selected according to the requirement. 1.2 Measuring tools are used according to the requirement 1.3 Measuring technique used is correct and appropriate to the device used.	1.1 Types, purposes and accuracy of measuring instruments 1.2 Capability of measuring instruments 1.3 Part dimensions and tolerances 1.4 Techniques for measuring dimensions	1.1 Selecting measuring tools 1.2 Obtaining accurate measurements 1.3 Determining measuring technique
2. Clean and store measuring tools	2.1 Cleaning of devices undertaken according to standard operating procedures. 2.2 Care of devices undertaken according to manufacturer's specifications. 2.3 Storage of devices undertaken according to standard operating procedures.	2.1 Types, purposes and accuracy of measuring instruments 2.2 Capability of measuring instruments 2.3 Part dimensions and tolerances 2.4 Techniques for measuring dimensions 2.5 Care and storage procedure of measuring tools	2.1 Determining proper care and storage of measuring tools.

3. Perform four fundamental operations.	3.1 Simple calculations are performed using ***four fundamentals operations.*** 3.2 Correct formula are applied to isolate the variable required. 3.3 Simple transposition of variables in the formulae are carried out. 3.4 Unknown variables are solved correctly.	3.1 Four fundamental operations 3.2 Fractions 3.3 Linear measurement 3.2 Geometrical measurement 3.3 Ratio and proportion 3.4 Area	3.1 Performing Calculations
4. Perform conversion of units	4.1 Familiarity to English system of measurement is required 4.2 Understanding to the metric system is necessary. 4.3 ***Units*** are converted to the required figure using the given formulae	4.1 English Systems of Measurement 4.2 Metric System of Measurement 4.3 Conversion of units from English to metric and/or vice versa	4.1 Performing Calculation

RANGE OF VARIABLES

VARIABLE	RANGE
1. Measuring tools	May include: 1.1 Try square 1.2 Steel rule 1.3 Welding gauges
2. Four fundamentals operations	May include: 2.1 Addition 2.2 Subtraction 2.3 Multiplication 2.4 Division
3 Units	May include: 3.1 English System 3.2 Metric System

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Selected and used measuring tools. 1.2 Cleaned and stored using measuring tools 1.3 Used four fundamental operations 1.4 Performed conversion of units
2. Resource Implications	The following resources must be provided 2.1 Tools and facilities appropriate to processes or activity 2.2 Materials relevant to the proposed activity
3. Method of Assessment	Competency must be assessed through: 3.1 Written or oral short answer questions 3.2 Practical exercises
4. Context of Assessment	Competency may be assessed in the workplace or in simulated workplace environment or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY : **CONTRIBUTE TO QUALITY MANAGEMENT SYSTEM (QMS)**

UNIT CODE : **MEE721211**

UNIT DESCRIPTOR : This unit involves competence required to contribute to quality management system towards work

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Apply quality management system (QMS)	1.1 Appropriate quality systems and procedures are applied throughout the production/fabrication process. 1.2 Documented information is properly controlled 1.3 QMS are properly implemented and maintained	1.1 Awareness on applicable quality management system/standards	1.1Conforming to QMS
2.Apply quality standards to work	2.1 Inspections are conducted throughout the production processes to ensure quality standards are maintained. 2.2 Appropriate quality standards are applied throughout the production/fabrication processes. 2.3 All activities are coordinated throughout the workplace to ensure efficient quality work	2.1 Awareness on applicable quality management system/ standards	2.1 Conforming to QMS

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	outcomes. 2.4 Records of work quality is maintained according to the company requirements.		
3.Protect company property and customer interests	3.1 Possible damage to ***company property*** is avoided by adherence to company quality procedures. 3.2 Quality of work is reviewed to ensure customer requirements and company standards are met. 3.3 Customer feedback system is established.	3.1 Awareness on applicable quality management system/ standards	3.1 Conforming to QMS

NO RANGE OF VARIABLES

VARIABLE	RANGE
1. Quality system and procedures	Quality system and procedures may be contained in: 1.1 Work instructions 1.2 Procedures manual 1.3 Safe work procedures 1.4 Equipment maintenance schedules 1.5 Product technical procedures adopted or specifically prepared standards 1.6 Company/industry rules
2. Company property	Company property includes: 2.1 production and/or fabrication equipment 2.2 hand and power tools 2.3 OH&S paraphernalia 2.4 Facilities

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Contributed to QMS towards work 1.2 Applied quality standards to work 1.3 Protected company property and customer interests
2. Resource Implications	The following resources should be provided 2.1 Quality manuals / procedures 2.2 Applicable Codes, Standards and Specifications 2.3 Company / Industry rules
3. Methods of Assessment	Competency should be assessed through: 3.1 Demonstration 3.2 Written or oral short answer questions
4. Context for Assessment	Competency may be assessed in the workplace or in simulated workplace environment or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY : **USE HAND TOOLS**

UNIT CODE **:** **MEE721205**

UNIT DESCRIPTOR : This unit covers the competencies required to use hand tools.

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1.Identify and use of Personal Protective Equipment (PPE)	1.1 ***Personal protective equipment*** (PPE) is used in accordance with Rule 1080 of Occupational Safety and Health Standards 1.2 Proper Care and Maintenance of PPEs are performed in accordance with OSHS 1.3 Storage and Disposal of PPE are followed according to OSHS	1.1 OSH rule 1080 work standard 1.2 Company/ workplace policies/ guidelines 1.3 Standards and safety requirements of work process and procedures	1.1 Applying safety procedures 1.2 Communication skill 1.3 Observation skills
2. Select and use of tools and equipment	2.1 ***Hand tools*** selected are appropriate to the requirements of the ***task***. 2.2 Tools and equipment are inspected according to manufacturer's recommendation 2.3 Tools and equipment are used as per	2.1 Tools and equipment Instruction manual 2.2 Adherence to work requirements	2.1 Communication skills 2.2 Handling of tools and equipment

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	operation manual instructions.		
3.Perform simple maintenance of tools and equipment	3.1Tools and equipment are cleaned and lubricated ***(routine maintenance)*** according to manufacturer's recommendation. 3.2 Unsafe or defective tools are identified and marked for repair/ decommission according to procedure. 3.3 Minor tools and equipment repair is performed according to manufacturer's instruction or worksite procedure.	3.1 Proper cleaning and oiling. 3.2 Equipment inspection and maintenance. 3.3 Simple repairs of hand tools	3.1Cleaning and lubricating. 3.2Conducting simple check – up and remedies 3.3Performing minor repairs

NO RANGE OF VARIABLES

VARIABLE	RANGE
1. Personal protective Equipment (PPE)	May include: 1.1 Welding Mask 1.2 Welding apron/jacket 1.3 Welding gloves (long) 1.4 Safety goggles 1.5 Respirator (as per NIOSH) 1.6 Safety shoes 1.7 Oxy-acetylene Goggles
2. Hand tools	May include: 2.1 Chipping Hammer 2.2 Steel brush 2.3 Pliers/ tongs 2.4 Files-bastard cut 2.5 Portable disc grinder 2.6 Try square 2.7 Steel rule 2.8 Files-half round 2.9 Welding gauges 2.10 Adjustable wrench 2.11 C- Clamps
3. Task	May include: 3.1 Testing / Inspection 3.2 Adjusting 3.3 Dismantling 3.4 Assembling
4. Routine maintenance	May include: 4.1 Cleaning 4.2 Lubricating 4.3 Adjusting 4.4 Simple tool repair

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Selected and used hand tools appropriate to the job 1.2 Performed routine maintenance and storage of hand tools
2. Resource Implications	The following resources should be provided 2.1 Tools, equipment and facilities appropriate to the process or activity 2.2 Materials relevant to the proposed activity
3. Methods of Assessment	Competency should be assessed through: 3.1 Demonstration 3.2 Written or oral short answer questions 3.3 Practical exercises
4. Context for Assessment	Competency may be assessed in the workplace or in simulated workplace environment or at the designated TESDA Accredited Assessment Center.

CORE COMPTENCIES

UNIT OF COMPETENCY : **SECURE DESIGN AND PLANNING SERVICES**

UNIT CODE **:** **ABMEE0203114821301**

UNIT DESCRIPTOR : This unit covers the competencies required in determining job requirements, preparing tools, materials, accessories, and workplace environment, producing CAD drawing, and saving and printing drawing in the preparation of farm equipment technical plan.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Submit letter of intent	1.1 Letter of intent is drafted to request for design 1.2 Letter of intent is approved by the supervisor 1.3 Approved plan is implemented in accordance with the job requirements.	1.1 Basic CAD operation 1.2 Metal composition 1.3 Tensile stress 1.4 Engineering requirements of parts	1.1 Determining material requirement 1.2 Identifying job requirements 1.3 Interpreting drawings and specifications 1.4 Applying machine and lay-out techniques 1.5 Implementing 3R's and 7S
2. Prepare tools, materials, accessories, and workplace environment	2.1 ***Work area*** is set/prepared in accordance with safety and environmental regulations. 2.2 ***Tools, materials, and accessories*** are identified and prepared in accordance with the job requirements.	2.1 Safe handling of tools, materials 2.2 Durability and strength of materials 2.3 Inspection of tools, materials and accessories	2.1 Checking and organizing space environment requirements 2.2 Handling of tools and equipment 2.3 Applying, computing, and calculating trade mathematics

ELEMENT	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.3 Tools, materials, and accessories are inspected and checked for defects/damage.		and mensuration 2.4 Checking/ Inspecting tools, materials, and accessories for possible defects/damage
3. Perform basic CAD drawing	3.1 ***CAD drawings*** are drafted consistent with the job requirement. 3.2 CAD drawings are reviewed in accordance with job requirements. 3.3 Reviewed CAD drawings are modified, if necessary. 3.4 ***Blueprints*** of technical drawings are saved reproduced.	3.1 Computer hardware safety practices 3.2 Theory of technical drafting, drawing 3.3 Technical drawing documentation 3.4 standard drawing scale, symbols, and abbreviations 3.5 Dimensioning 3.6 Photorealistic renderings	3.1 Applying technical drafting skills 3.2 Applying photorealistic renderings 3.3 Printing and plotting operations 3.4 Backing up files 3.5 Implementing 3 Rs and 7s

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work area	May include: 1.1 Workspace 1.2 Workshop 1.3 Working area 1.4 Working station
2. Tools, materials, and accessories	May include: 2.1 Computer 2.2 CAD software 2.3 Printer 2.4 Blueprint paper
3. CAD Drawings	May include: 3.1 Lines 3.2 Arcs 3.3 Circles 3.4 Polygons 3.5 Ellipses 3.6 Hatching or filling of areas 3.7 Text dimensions 3.8 Tangents
4. Blueprint	May include: 4.1 plan 4.2 design 4.3 draft 4.4 outline 4.5 drawing

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Submitted letter of intent 1.2 Prepared tools, materials, accessories, and workplace environment 1.3 Performed basic CAD drawing
2. Resource Implications	The following resources must be provided: 2.1 Computer equipment, printer/plotter, software, and facilities appropriate to processes or activities 2.2 Sample part/model 2.3 Measuring instruments 2.4 Drawings, sketches, or blueprint
3. Methods of Assessment	Competency must be assessed through: 3.1 Direct observation / demonstration of creation of 2D & 3D CAD drawings 3.2 Written exam 3.3 Portfolio
4. Context for Assessment	Competency may be assessed in the workplace or in simulated workplace environment

UNIT OF COMPETENCY : **TURN WORKPIECE (BASIC)**

UNIT CODE : **MEE722302**

UNIT DESCRIPTOR : This unit covers the skills required to setup and turn workpiece to drawing specifications. It details the requirements for performing lathe operations such as facing and straight turning; cutting grooves, drilling and boring, knurling; cutting single start external vee- and ACME threads; and cutting tapers using compound slide and formed tools.

Elements	Performance Criteria	Required Knowledge	Required Skills
1. Determine job requirements	1.1 ***Drawings*** are interpreted to produce components to specifications. 1.2 Sequence of operation is determined to produce components to specifications. 1.3 ***Cutting tools*** are selected according to the requirements of the operation.	1.1 Standard drawing scales, symbols and abbreviations 1.2 Orthographic and isometric drawings 1.3 1st and 3rd angle projections 1.4 Assembly and detail drawings 1.5 Tolerances, limits and fits 1.6 Cutting tools used in lathe operations (tool bits, drills & reamers)	1.1 Interpreting Drawings 1.2 Interpreting tolerances, limits and fits 1.3 Selecting cutting Tools 1.4 Using cutting tools
2. Setup workpiece	2.1 ***Workpiece*** is mounted and centered on chuck to required level of accuracy using tools and equipment in accordance with worksite procedures. 2.2 Workpiece is set up to the required level of accuracy using	2.1 Classification and mechanical properties of engineering materials 2.2 Surface gauge and dial indicator on magnetic stand 2.3 Protective clothing and devices 2.4 Hazardous	2.1 Classifying engineering materials 2.2 Setting up instruments/ equipment 2.3 Using protective clothing and devices 2.4 Handling of tools, equipment and materials 2.5 OHS Policies and

	instruments/ equipment according to work site procedures. 2.3 Setup operations are performed applying knowledge on safety procedures and using personal protective devices.	areas in the workplace 2.5 Safe handling of tools, equipment and materials	Procedures
3. Perform turning operations	3.1 Speeds and feeds are calculated using appropriate mathematical techniques and reference material. 3.2 ***Lathe accessories*** used are appropriate to the requirements of the operation. 3.3 ***Lathe operations*** are performed to produce components to specifications in the drawing. 3.6 Operations are performed applying knowledge on safety procedures and using personal protective devices.	3.1 Basic arithmetic operations 3.2 Fractions and decimals 3.3 Percentages and ratios 3.4 Percentages and ratios 3.5 Conversion of units 3.6 Different Lathe machine accessories 3.7 Basic Knowledge on the different parts and accessories of lathe machine 3.8 Lathe types and Specifications 3.9 Lathe parts and Functions 3.10 Setting cutting speed rpm, feed rate 3.11 Work holding and tool holding devices 3.12 Turning tools and tool geometry 3.13 Tooling, set up and	3.1 Calculating feed, cutting speed and machine rpm 3.2 Identifying different types and specifications of lathes machines 3.3 Using appropriate lathe accessories 3.4 Performing lathe operations 3.5 Applying safety precautions during lathe operations 3.6 OHS Policies and Procedures

		parameters in turning operations 3.14 Lathe accessories, fixtures and attachments	
4. Check/Measure workpiece	4.1 Workpiece is checked/measured for conformance to specification using appropriate techniques, ***measuring tools*** and equipment. 4.2 Feed, cutting speed and machine rpm is computed based on the enterprise standards 4.3 Checking and measuring of workpieces are performed applying knowledge of safety procedures and using personal protective devices.	4.1 Ways of checking and measuring workpiece 4.2 Different types of tools for checking and measuring workpiece 4.3 Workpiece specification	4.1 Using measuring instruments 4.2 OHS Policies and Procedures 4.3 Computation of feed, cutting speed and machine rpm 4.4 Verifying workpiece specification

RANGE OF VARIABLES

VARIABLE	RANGE
1. Drawings	May include: 1.1 Views and projections 1.2 Drawing symbols 1.3 Dimensions and features 1.4 Tolerances
2. Cutting Tools	May include: 2.1 Tool bits 2.1.1 High speed steel 2.1.2 Inserts 2.2 Drills 2.3 Reamers
3. Workpiece	May include: 3.1 Ferrous metals 3.2 Non-ferrous metals
4. Instruments/ equipment	May include: 4.1 Surface gauge 4.2 Dial indicator on magnetic stand
5. Lathe Accessories	May include: 5.1 3- and 4-jaw chucks 5.2 Lathe centers 5.3 Drill chucks 5.4 Knurling tools 5.5 Boring bar
6. Lathe Operations	May include: 6.1 facing 6.2 straight turning 6.3 cutting recess, shoulders, grooves and chamfers 6.4 drilling, boring, counterboring, countersinking, reaming 6.5 knurling 6.6 single-start external vee and ACME thread cutting 6.7 parting-off 6.8 cutting external taper using compound slide or formed tool
7. Measuring Tools	May include: 7.1 Steel rule 7.2 Vernier caliper 7.3 Micrometer caliper 7.4 Gages (thread, drill, surface finish, radius, screw pitch, taper)

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 determined job requirements 1.2 set up the workpiece. 1.3 performed turning operations 1.4 checked/measured the workpiece
2. Resource Implications	The following resources MUST be provided 2.1 Tools, equipment and facilities appropriate to processes or activities 2.2 Materials relevant to the proposed activity 2.3 Drawings, sketches or blueprint
3. Methods of Assessment	Competency must be assessed through: 3.1 direct observation of lathe setting activities 3.2 written or oral short answer questions 3.3 practical exercises 3.4 identify colleagues/clients who can be approached for the collection of competency evidence, where appropriate
4. Context for Assessment	Competency may be assessed in the workplace or in simulated workplace environment

UNIT OF COMPETENCY : **ASSEMBLE FARM EQUIPMENT PARTS AND ACCESORIES**

UNIT CODE : **ABMEE0203114821303**

UNIT DESCRIPTOR : This unit covers the required knowledge, skills and attitude in setting up parts and accessories for assembly, assembling chassis system and installing machine parts and accessories to the chassis system.

Elements	Performance Criteria	Required Knowledge	Required Skills
1. Set-up parts and accessories for assembly	1.1 Assembly workplace is prepared in accordance with ***OH&S policies and procedures*** 1.2 ***Work instructions*** are obtained and clarified based on job requirement 1.3 ***Parts and accessories*** are set up in accordance with job requirements.	1.1 OH&S risk hazards and prevention 1.2 OH&S policies and procedures 1.3 Trade mathematics and mensuration 1.4 Different kinds of metals, and their sizes, gauges and tensile strength 1.5 Parts and accessories	1.1 Applying OH&S risk hazards and prevention 1.2 Applying OH&S policies and procedures 1.3 Identifying parts and accessories 1.4 Implementing 3Rs and 7S
2. Assemble chassis system	2.1 ***Components for the chassis system*** are selected based on job requirements. 2.2 Chassis system is assembled based on prepared design and machine requirements. 2.3 ***Powder coating*** is applied on the unit. 2.4 Inspection is performed based on Standard procedure	2.1 Parts of machine 2.2 Different types of machine fasteners (bolts, screws, knots) 2.3 Components of a chassis system 2.4 Types of paint 2.5 Powder coating 2.6 Properties of metals	2.1 Selecting components of chassis system 2.2 Assembling chassis system based on prepared design and machine requirements 2.3 Selecting color and type of paint 2.4 Interpreting technical drawing and machine design 2.5 Applying powder coating to the chassis system

			2.6 Performing inspection 2.7 Interpreting standard procedures for inspection 2.8 Implementing 3Rs and 7S
3.1 Install machine parts and accessories to the chassis system	3.1 Parts and accessories are installed on the chassis system based on the prepared machine design and requirements 3.2 ***Alignment and gaps*** are checked based on specification. 3.3 Installed parts and accessories to the chassis system are checked and inspected for defects and inconsistencies. 3.4 ***Defects and inconsistencies*** are modified according to the specification	3.1 Parts of machine 3.2 Different types of fasteners 3.3 Technical drawing of the design 3.4 Properties of metals 3.5 Machine design 3.6 Defects and inconsistencies	3.1 Assembling and installing accessories to the chassis system 3.2 Mounting and installing parts and accessories to the chassis system 3.3 Determining alignments and gaps 3.4 Implementing 3Rs and 7S

RANGE OF VARIABLES

VARIABLE	RANGE
1. OH&S policies and procedures	May include: 1.1 Work safety 1.2 Safety issues 1.3 Safe work practices 1.4 Environmental protection 1.5 Handling of hazardous chemicals 1.6 Safety signs, warnings and symbols
2. Work instructions	May include: 2.1 Safety warnings 2.2 Worksheet 2.3 Task sheet 2.4 Procedures
3. Parts and accessories	May include: 3.1 Disc Harrow 3.2 Brake Pumps 3.3 Lights 3.4 Steering Rods 3.5 Toplinks 3.6 Cab stairs 3.7 Connecting rods 3.8 Piston-liner kits 3.9 Gaskets 3.10 Injection Systems 3.11 Water Pumps 3.12 Cooling fans 3.13 Radiators 3.14 Camshafts and parts 3.15 Fuel pumps 3.16 Turbo changers 3.17 Cultivator disc 3.18 Hydraulic valves 3.19 Hose fittings 3.20 Sensor switches 3.21 Press for hydraulic hoses 3.22 Impact wrench 3.23 Suction pads 3.24 Bolts 3.25 Fasteners 3.26 Hoppers 3.27 Chute

4. Components for the chassis system	May include: 4.1 Wheels 4.2 Wheel carrier 4.3 Wheel bearing 4.4 Brake 4.5 Wheel suspension 4.6 Axle support 4.7 Coupling rod 4.8 Hydraulic shock absorber 4.9 Independent suspension 4.10 Rigid axle 4.11 Shock absorbers 4.12 Single-tube gas-filled shock absorbers 4.13 Spring strut support bearings 4.14 Stabilizer 4.15 Suspension link 4.16 Suspension Spring 4.17 Torsion-beam rear axle
5. Powder coating	May include: 5.1 Electrostatic Powder Spray gun 5.2 Coating thickness measurement 5.3 Powder application system 5.4 Charging system 5.5 Powder spray guns 5.6 Booth canopy design 5.7 Gun-to-booth Wall Distance 5.8 Gun-to-part Distance
6. Alignment and gaps	May include: 6.1 Misalignment 6.2 coarse ripples 6.3 Grooves 6.4 Overlaps 6.5 Abrupt ridges 6.6 Valleys
7. Defects and inconsistencies	May include: 7.1 Re-entrant angle 7.2 Root concavity 7.3 Lack of penetration 7.4 Misalignment 7.5 Concavity/Suckback 7.6 Undercut 7.7 Excessive Penetration 7.8 Cracking 7.9 Incomplete fusion

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Set-up parts and accessories for assembly 1.2 Assembled chassis system 1.3 Installed machine parts and accessories to the chassis system
2. Resource Implications	The following resources must be provided: 2.1 Work area 2.2 Parts and accessories for assembly 2.3 Chassis system
3. Methods of Assessment	Competency must be assessed through: 3.1 Direct observation / demonstration 3.2 Written exam 3.3 Portfolio
4. Context for Assessment	Competency may be assessed in the workplace or in simulated workplace environment

UNIT OF COMPETENCY : **INSPECT AND TEST FARM EQUIPMENT**

UNIT CODE : **ABMEE0203114821304**

UNIT DESCRIPTOR : This unit covers the required knowledge, skills and attitude in pre-testing of the machine, apply necessary adjustments, and finalizing test and commissioning of farm equipment.

Elements	Performance Criteria	Required Knowledge	Required Skills
1. Pre-testing of machine	1.1 ***Farm Equipment*** is prepared for pre-inspection. 1.2 ***Pre-inspection*** is conducted based on the approved design. 1.3 ***Pre-testing*** is done according to design and built.	1.1 Friction, acceleration, heat, and resistance 1.2 Basic mathematical operation 1.3 Types of Lubricants 1.4 Speed and Velocity 1.5 Computation of Area, time rates 1.6 Waste management, pollution Control	1.1 Applying basic mathematical operation 1.2 Applying machine operation 1.3 Using of measuring instrument (Thermal scanner) Implementing 3Rs and 7S 1.4 Observation skills
2. Apply necessary machine adjustments	2.1 Deficiencies are determined and rectified based on pre-testing results. 2.2 Defective components/parts are replaced or corrected in- line with standards. 2.3 Necessary adjustments are made in accordance with established procedures.	2.1 Friction, acceleration, heat and resistance 2.2 Basic mathematical operation 2.3 Speed and Velocity 2.4 Computation of Area, time rates 2.5 Waste management, pollution control	2.1 Applying basic mathematical operation 2.2 Applying machine operation 2.3 Implementing 3Rs and 7S 2.4 Applying OHS policies and procedures

		2.6 Proper handling of tools	
3. Final test and commissioning of the farm equipment	3.1 Farm equipment is prepared for final testing and commissioning based on PAES requirements 3.2 ***Testing and commissioning*** is done according to design and build. 3.3 Machine performance is evaluated based on ***Philippine Agricultural Engineering Standards (PAES)*** thru the Agricultural Machinery Testing and Evaluation Center (AMTEC).	3.1 Friction, acceleration, heat and resistance 3.2 Basic mathematical operation 3.3 Speed and Velocity 3.4 Computation of area, time rates 3.5 Awareness on the Philippine Agricultural Engineering Standards (PAES) 3.6 Importance of PAES 3.7 PAES Agricultural structures 3.8 Waste management, pollution control 3.9 Test application process 3.10 Agricultural Machinery Testing and Evaluation Center (AMTEC)	3.1 Applying basic mathematical operation 3.2 Applying machine operation 3.3 Implementing 3Rs and 7S

RANGE OF VARIABLES

VARIABLE	RANGE
1. Farm Equipment	May include: 1.1 Direct Seeder 1.2 Harrow 1.3 Planters 1.4 Fertilizer spreaders 1.5 Balers 1.6 Wagons/Trailers 1.7 Reaper 1.8 Thresher 1.9 Winnower 1.10 Rotavators
2. Pre-inspection	May include: 2.1 Pre-inspection guidelines 2.2 Inspection checklist 2.3 Evaluation report 2.4 Corrective actions
3. Pre-testing	May include: 3.1 with load 3.2 without load
5. Testing and commissioning	May include: 4.1 Functional performance characteristics of machine 4.2 Power requirement of a particular component of whole machine 4.3 Durability 4.4 Wear testing of some soil engaging tools 4.5 External forces such as soil forces acting on soil engaging tools 4.6 Stress developed in different parts of the machine due to static
6. Philippine National Standards (PNS) /Philippine Agricultural Engineering Standards (PAES)	May include: 5.1 Republic Act No. 10601 5.2 Bureau of Philippine Standards (DTI -RA 4109) 5.3 RA 7394 – Consumer Act of the Philippines 5.4 Agriculture and Fisheries Modernization Act (AFMA) 5.5 Agricultural Machinery Testing and Evaluation Center (AMTEC)

EVIDENCE GUIDE

1. Critical aspects of evidence	Assessment requires evidence that the candidate: 1.1 Pre-tested machine 1.2 Applied necessary adjustments 1.3 Conducted final testing and commissioning of the farm equipment
2. Resource implications	The following resources must be provided: 2.1 Assembled farm equipment 2.2 Workspace necessary for inspection and testing
3. Method of assessment	Competency must be assessed through: 3.1 Direct observation / demonstration 3.2 Written exam 3.3 Demonstration
4. Context for assessment	Competency may be assessed in the workplace or in simulated workplace environment.

GLOSSARY OF TERMS

1.	**Agricultural Machinery Testing and Evaluation Center (AMTEC)**	Any accredited testing center which is formally recognized by the University of the Philippines – Agricultural Machinery Testing and Evaluation Center (UPLB-AMTEC) as one of its partners in testing and evaluation of agricultural and fisheries machinery. (https://www.da.gov.ph/wpcontent/uploads/2017/06/dc05_s2017.pdf)
2.	**Bench work**	The operations incident to the process of laying out, fitting, assembling etc.
3.	**Chassis**	The base frame of a motor vehicle or other wheeled conveyance
4.	**Drilling**	Is the operation of producing a circular hole by removing solid metal
5.	**Evaluation**	Is the process of assessing a machine or equipment, preferably in numerical or quantitative terms relative to statutory requirements and/or specific standards
6.	**Grinding**	Refers to the removal of material from a workpiece with grinding wheel
7.	**Laying-out**	Is a term used to include the marking or scribbling of center points, circles, arcs or straight lines upon surfaces, either curved or flat, for the guidance of the worker
8.	**Milling**	Refers to the removal of metal by feeding a workpiece through the periphery of rotating circular cutter
9.	**Precision Rice Seeder (PRS)**	Is a self-propelled and a ride-on type planting equipment that accurately drops or places desired numbers of seeds at a precise depth and spacing
10.	**Transmission**	The mechanism by which power is transmitted from an engine to the wheels of a motor vehicle rod and metal
11.	**Testing**	Is the systematic and objective process of assessing the construction and performance of a machine or equipment using specified repeatable procedures.
12.	**Weld Defects**	An irregularity that spoils the weld appearance or impairs the effectiveness of the weld or weldment by causing weakness or failure

13.	**Philippine National Standards (PNS) /Philippine Agricultural Engineering Standards (PAES)**	Standards used for the preparation and monitoring of specifications and test and evaluation of machine and equipment performance and serve as technical reference by all agricultural and biosystems engineers in the practice of their profession. (https://www.da.gov.ph/wpcontent/uploads/2017/06/dc05_s2017.pdf)

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