

TRAINING REGULATIONS

DRYING AND MILLING PLANT SERVICING NC III



TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
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TRAINING REGULATIONS FOR DRYING AND MILLING PLANT SERVICING NC III

SECTION 1 QUALIFICATION DESCRIPTION

The **DRYING AND MILLING PLANT SERVICING NC III** Qualification consists of competencies that a **Drying and Milling Plant Service Technician** must have in order to service grains drying plant facilities, service rice milling plant facility and service corn milling plant facility.

It also includes competencies of a person to use a wide range of tools and instrument and take responsibility for the reliability of servicing to ensure conformance with specifications. He can perform any work within a quality improvement system in a drying and milling plant environment.

This Qualification is packaged from the competency map of the Agriculture, Forestry and Fishery Sector as shown in Annex A.

The Units of Competency comprising this Qualification include the following:

UNIT CODE BASIC COMPETENCIES

500311109	Lead workplace communication
500311110	Lead small teams
500311111	Develop and practice negotiation skills
500311112	Solve problems related to work activities
500311113	Use mathematical concepts and techniques
500311114	Use relevant technologies

UNIT CODE COMMON COMPETENCIES

AGR321201	Apply safety measures in farm operations
AGR321202	Use farm tools and equipment
AGR741203	Perform estimation and calculations

UNIT CODE CORE COMPETENCIES

AFF723301	Service grains drying plant facilities
AFF723302	Service rice milling plant facility
AFF723303	Service corn milling plant facility

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

- Drying and Milling Plant Service Technician**

SECTION 2 COMPETENCY STANDARDS

This section gives the details and contents of the units of competency required in **DRYING AND MILLING PLANT SERVICING NC III**. These units of competency are categorized into basic, common and core competencies.

BASIC COMPETENCY

UNIT OF COMPETENCY : **LEAD WORKPLACE COMMUNICATION**

UNIT CODE : **500311109**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Communicate information about workplace processes	1.1 Appropriate communication method is selected 1.2 Multiple operations involving several topics areas are communicated accordingly 1.3 Questions are used to gain extra information 1.4 Correct sources of information are identified 1.5 Information is selected and organized correctly 1.6 Verbal and written reporting is undertaken when required 1.7 Communication skills are maintained in all situations	1.1 Organization requirements for written and electronic communication methods 1.2 Effective verbal communication methods	1.1 Organize information 1.2 Understand and convey intended meaning 1.3 Participate in variety of workplace discussions 1.4 Comply with organization requirements for the use of written and electronic communication methods
2. Lead workplace discussions	2.1 Response to workplace issues are sought 2.2 Response to workplace issues	2.1 Organization requirements for written and electronic communication methods	2.1 Organize information 2.2 Understand and convey intended meaning

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>are provided immediately</p> <p>2.3 Constructive contributions are made to workplace discussions on such issues as production, quality and safety</p> <p>2.4 Goals/objectives and Action plan undertaken in the workplace are communicated</p>	2.2 Effective verbal communication methods	<p>2.3 Participate in variety of workplace discussions</p> <p>2.4 Comply with organization requirements for the use of written and electronic communication methods</p>
3. Identify and communicate issues arising in the workplace	<p>3.1 Issues and problems are identified as they arise</p> <p>3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication</p> <p>3.3 Dialogue is initiated with appropriate personnel</p> <p>3.4 Communication problems and issues are raised as they arise</p>	<p>3.1 Organization requirements for written and electronic communication methods</p> <p>3.2 Effective verbal communication methods</p>	<p>3.1 Organize information</p> <p>3.2 Understand and convey intended meaning</p> <p>3.3 Participate in variety of workplace discussions</p> <p>3.4 Comply with organization requirements for the use of written and electronic communication methods</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Methods of communication	1.1. Non-verbal gestures 1.2. Verbal 1.3. Face to face 1.4. Two-way radio 1.5. Speaking to groups 1.6. Using telephone 1.7. Written 1.8. Internet

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Dealt with a range of communication/information at one time 1.2 Made constructive contributions in workplace issues 1.3 Sought workplace issues effectively 1.4 Responded to workplace issues promptly 1.5 Presented information clearly and effectively written form 1.6 Used appropriate sources of information 1.7 Asked appropriate questions 1.8 Provided accurate information
2. Resource Implications	The following resources should be provided: 2.1. Variety of Information 2.2. Communication tools 2.3. Simulated workplace
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Competency in this unit must be assessed through 3.2 Direct Observation 3.3 Interview
4. Context for Assessment	4.1. Competency may be assessed in the workplace or in simulated workplace environment

UNIT OF COMPETENCY : LEAD SMALL TEAMS

UNIT CODE : 500311110

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes to lead small teams including setting and maintaining team and individual performance standards.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Provide team leadership	1.1 <i>Work requirements</i> are identified and presented to team members 1.2 Reasons for instructions and requirements are communicated to team members 1.3 <i>Team members' queries and concerns</i> are recognized, discussed and dealt with	1.1 Company policies and procedures 1.2 How performance expectations are set 1.3 Methods of Monitoring Performance 1.4 Client expectations 1.5 Team member's duties and responsibilities	1.1 Communication skills required for leading teams 1.2 Team building skills 1.3 Negotiating skills
2. Assign responsibilities	2.1. Duties, and responsibilities are allocated having regard to the skills, knowledge and aptitude required to properly undertake the assigned task and according to company policy 2.2. Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible	2.1 Company policies and procedures 2.2 Relevant legal requirements 2.3 How performance expectations are set 2.4 Methods of Monitoring Performance 2.5 Team member's duties and responsibilities	2.1 Communication skills required for leading teams 2.2 Team building skills 2.3 Negotiating skills
3. Set performance expectations for team members	3.1 Performance expectations are established based on client needs and according to assignment requirements 3.2 Performance expectations are based on individual team members duties and area of responsibility 3.3 Performance expectations are discussed and disseminated to individual team members	3.1 Company policies and procedures 3.2 Relevant legal requirements 3.3 How performance expectations are set 3.4 Methods of Monitoring Performance	3.1 Communication skills required for leading teams 3.2 Informal performance counseling skills 3.3 Team building skills 3.4 Negotiating skills

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		3.5 Client expectations 3.6 Team member's duties and responsibilities	
4. Supervise team performance	<p>4.1 Monitoring of performance takes place against defined performance criteria and/or assignment instructions and corrective action taken if required</p> <p>4.2 Team members are provided with <i>feedback</i>, positive support and advice on strategies to overcome any deficiencies</p> <p>4.3 <i>Performance issues</i> which cannot be rectified or addressed within the team are referenced to appropriate personnel according to employer policy</p> <p>4.4 Team members are kept informed of any changes in the priority allocated to assignments or tasks which might impact on client/customer needs and satisfaction</p> <p>4.5 Team operations are monitored to ensure that employer/client needs and requirements are met</p> <p>4.6 Follow-up communication is provided on all issues affecting the team</p> <p>4.7 All relevant documentation is completed in accordance with company procedures</p>	<p>4.1 Company policies and procedures</p> <p>4.2 Relevant legal requirements</p> <p>4.3 How performance expectations are set</p> <p>4.4 Methods of Monitoring Performance</p> <p>4.5 Client expectations</p> <p>4.6 Team member's duties and responsibilities</p>	<p>4.1 Communication skills required for leading teams</p> <p>4.2 Informal performance counseling skills</p> <p>4.3 Team building skills</p> <p>4.4 Negotiating skills</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work requirements	1.1. Client Profile 1.2. Assignment instructions
2. Team member's concerns	2.1. Roster/shift details
3. Monitor performance	3.1. Formal process 3.2. Informal process
4. Feedback	4.1. Formal process 4.2. Informal process
5. Performance issues	5.1. Work output 5.2. Work quality 5.3. Team participation 5.4. Compliance with workplace protocols 5.5. Safety 5.6. Customer service

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1. Maintained or improved individuals and/or team performance given a variety of possible scenario 1.2. Assessed and monitored team and individual performance against set criteria 1.3. Represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf 1.4. Allocated duties and responsibilities, having regard to individual's knowledge, skills and aptitude and the needs of the tasks to be performed 1.5. Set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members
2. Resource Implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2.2. Materials relevant to the proposed activity or task
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1. Direct observations 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	<ul style="list-style-type: none"> 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 : DEVELOP AND PRACTICE NEGOTIATION SKILLS

UNIT CODE : 500311111

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes required to collect information in order to negotiate to a desired outcome and participate in the negotiation.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Plan negotiations	1.1 Information on <i>preparing for negotiation</i> is identified and included in the plan 1.2 Information on creating <i>non-verbal environments</i> for positive negotiating is identified and included in the plan 1.3 Information on <i>active listening</i> is identified and included in the plan 1.4 Information on different <i>questioning techniques</i> is identified and included in the plan 1.5 Information is checked to ensure it is correct and up-to-date	1.1 Codes of practice and guidelines for the organization 1.2 Organizations policy and procedures for negotiations 1.3 Decision making and conflict resolution strategies procedures 1.4 Flexibility	1.1 Interpersonal skills to develop rapport with other parties 1.2 Communication skills (verbal and listening) 1.3 Observation skills 1.4 Negotiation skills
2. Participate in negotiations	2.1 <i>Criteria for successful outcome are agreed upon by all parties</i> 2.2 Desired outcome of all parties are considered 2.3 Appropriate language is used throughout the negotiation 2.4 A variety of questioning techniques are used 2.5 The issues and processes are documented and agreed upon by all parties 2.6 Possible solutions are discussed and their viability assessed 2.7 Areas for agreement are confirmed and recorded 2.8 Follow-up action is agreed upon by all parties	2.1 Codes of practice and guidelines for the organization 2.2 Organizations policy and procedures for negotiations 2.3 Decision making and conflict resolution strategies procedures 2.4 Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation 2.5 Flexibility 2.6 Empathy	2.1 Interpersonal skills to develop rapport with other parties 2.2 Communication skills (verbal and listening) 2.3 Observation skills 2.4 Negotiation skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Preparing for negotiation	1.1 Background information on other parties to the negotiation Good understanding of topic to be negotiated 1.2 Clear understanding of desired outcome/s 1.3 Personal attributes 1.4 1.4.1 self awareness 1.4.2 self esteem 1.4.3 objectivity 1.4.4 empathy 1.4.5 respect for others Interpersonal skills 1.5 1.5.1 listening/reflecting 1.5.2 non verbal communication 1.5.3 assertiveness 1.5.4 behavior labeling 1.5.5 testing understanding 1.5.6 seeking information 1.5.7 self disclosing Analytic skills 1.6 1.6.1 observing differences between content and process 1.6.2 identifying bargaining information 1.6.3 applying strategies to manage process 1.6.4 applying steps in negotiating process 1.6.5 strategies to manage conflict 1.6.6 steps in negotiating process 1.6.7 options within organization and externally for resolving conflict
2. Non verbal environments	2.1 Friendly reception 2.2 Warm and welcoming room 2.3 Refreshments offered 2.4 Lead in conversation before negotiation begins
3. Active listening	3.1 Attentive 3.2 Don't interrupt 3.3 Good posture 3.4 Maintain eye contact 3.5 Reflective listening
4. Questioning techniques	4.1 Direct 4.2 Indirect 4.3 Open-ended

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Demonstrated sufficient knowledge of the factors influencing negotiation to achieve agreed outcome</p> <p>1.2 Participated in negotiation with at least one person to achieve an agreed outcome</p>
2. Resource Implications	<p>The following resources should be provided:</p> <p>2.1 Room with facilities necessary for the negotiation process</p> <p>2.2 Human resources (negotiators)</p>
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <p>3.1 Observation/demonstration and questioning</p> <p>3.2 Portfolio assessment</p> <p>3.3 Oral and written questioning</p> <p>3.4 Third party report</p>
4. Context for Assessment	<p>4.1 Competency to be assessed in real work environment or in a simulated workplace setting.</p>

UNIT OF COMPETENCY : **SOLVE PROBLEMS RELATED TO WORK ACTIVITIES**
UNIT CODE : **500311112**
UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to solve problems in the workplace including the application of problem solving techniques and to determine and resolve the root cause of problems.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify the problem	1.1 Variances are identified from normal operating parameters; and product quality 1.2 Extent, cause and nature are of the problem are defined through observation, investigation and analytical techniques 1.3 Problems are clearly stated and specified	1.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations 1.2 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations 1.2.1 Relevant equipment and operational processes 1.2.2 Enterprise goals, targets and measures 1.2.3 Enterprise quality, OHS and environmental requirement 1.2.4 Enterprise information systems and data collation 1.2.5 Industry codes and standards	1.1 Using range of formal problem solving techniques 1.2 Identifying and clarifying the nature of the problem

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Determine fundamental causes of the problem	2.1 Possible causes are identified based on experience and the use of problem solving tools / analytical techniques. 2.2 Possible cause statements are developed based on findings 2.3 Fundamental causes are identified per results of investigation conducted	2.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations 2.2 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations 2.2.1 Relevant equipment and operational processes 2.2.2 Enterprise goals, targets and measures 2.2.3 Enterprise quality, OHS and environmental requirement 2.2.4 Enterprise information systems and data collation 2.2.5 Industry codes and standards	2.1 Using range of formal problem solving techniques 2.2 Identifying and clarifying the nature of the problem
3. Determine corrective action	3.1 All possible options are considered for resolution of the problem 3.2 Strengths and weaknesses of possible options are considered 3.3 Corrective actions are determined to resolve the	3.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to	3.1 Using range of formal problem solving techniques 3.2 Identifying and clarifying the nature of the problem

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>problem and possible future causes</p> <p>3.4 Action plans are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures</p>	<p>recognize non-standard situations</p> <p>3.2 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations</p> <p>3.2.1 Relevant equipment and operational processes</p> <p>3.2.2 Enterprise goals, targets and measures</p> <p>3.2.3 Enterprise quality, OHS and environmental requirement</p> <p>3.2.4 Principles of decision making strategies and techniques</p> <p>3.2.5 Enterprise information systems and data collation</p> <p>3.2.6 Industry codes and standards</p>	<p>3.3 Devising the best solution</p> <p>3.4 Evaluating the solution</p> <p>3.5 Implementation of a developed plan to rectify the problem</p>
4. Provide recommendation/s to manager	<p>4.1 Report on recommendations are prepared</p> <p>4.2 Recommendations are presented to appropriate personnel.</p> <p>4.3 Recommendations are followed-up, if required</p>	4.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations	<p>4.1 Using range of formal problem solving techniques</p> <p>4.2 Identifying and clarifying the nature of the problem</p> <p>4.3 Devising the best solution</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		<p>4.2 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations</p> <p>4.2.1 Relevant equipment and operational processes</p> <p>4.2.2 Enterprise goals, targets and measures</p> <p>4.2.3 Enterprise quality, OHS and environmental requirement</p> <p>4.2.4 Principles of decision making strategies and techniques</p> <p>4.2.5 Enterprise information systems and data collation</p> <p>4.2.6 Industry codes and standards</p>	<p>4.4 Evaluating the solution</p> <p>4.5 Implementation of a developed plan to rectify the problem</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Analytical techniques	1.1. Brainstorming 1.2. Intuitions/Logic 1.3. Cause and effect diagrams 1.4. Pareto analysis 1.5. SWOT analysis 1.6. Gant chart, Pert CPM and graphs 1.7. Scattergrams
2. Problem	2.1. Non – routine process and quality problems 2.2. Equipment selection, availability and failure 2.3. Teamwork and work allocation problem 2.4. Safety and emergency situations and incidents
3. Action plans	3.1. Priority requirements 3.2. Measurable objectives 3.3. Resource requirements 3.4. Timelines 3.5. Co-ordination and feedback requirements 3.6. Safety requirements 3.7. Risk assessment 3.8. Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1. Identified the problem 1.2. Determined the fundamental causes of the problem 1.3. Determined the correct / preventive action 1.4. Provided recommendation to manager <p>These aspects may be best assessed using a range of scenarios / case studies / 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.</p>
2. Resource Implications	<p>2.1. Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios / case studies / what ifs will be required as well as bank of questions which will be used to probe the reason behind the observable action.</p>
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1. Case studies on solving problems in the workplace 3.2. Observation <p>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.</p>
4. Context for Assessment	<p>4.1. In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.</p>

UNIT OF COMPETENCY : USE MATHEMATICAL CONCEPTS AND TECHNIQUES

UNIT CODE : 500311113

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required in application of mathematical concepts and techniques.

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify mathematical tools and techniques to solve problem	1.1 Problem areas are identified based on given condition 1.2 Mathematical techniques are selected based on the given problem	1.1 Fundamental operation (addition, subtraction, division, multiplication) 1.2 Measurement system 1.3 Precision and accuracy 1.4 Basic measuring tools/devices	1.1 Applying mathematical computations 1.2 Using calculator 1.3 Using different measuring tools
2. Apply mathematical procedure/ solution	2.1 Mathematical techniques are applied based on the problem identified 2.2 Mathematical computations are performed to the level of accuracy required for the problem 2.3 Results of mathematical computation is determined and verified based on job requirements	2.1 Fundamental operation (addition, subtraction, division, multiplication) 2.2 Measurement system 2.3 Precision and accuracy 2.4 Basic measuring tools/devices	2.1 Applying mathematical computations 2.2 Using calculator 2.3 Using different measuring tools
3. Analyze results	3.1 Result of application is reviewed based on expected and required specifications and outcome 3.2 Appropriate action is applied in case of error	3.1 Fundamental operation (addition, subtraction, division, multiplication) 3.2 Measurement system 3.3 Precision and accuracy 3.4 Basic measuring tools/devices	3.1 Applying mathematical computations 3.2 Using calculator 3.3 Using different measuring tools

RANGE OF VARIABLES

VARIABLES	RANGE
1. Mathematical techniques	May include: 1.1 Four fundamental operations 1.2 Measurements 1.3 Use/Conversion of units of measurements 1.4 Use of standard formulas
2. Appropriate action	2.1 Review in the use of mathematical techniques (e.g. recalculation, re-modeling) 2.2 Report error to immediate superior for proper action

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified, applied and reviewed the use of mathematical concepts and techniques to workplace problems
2. Resource Implications	The following resources should be provided: 2.1 Calculator 2.2 Basic measuring tools 2.3 Case Problems
3. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Authenticated portfolio 3.2 Written Test 3.3 Interview/Oral Questioning 3.4 Demonstration
4. Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : USE RELEVANT TECHNOLOGIES
(Apply technology effectively)

UNIT CODE : 500311114

UNIT DESCRIPTOR : This unit of competency covers the knowledge, skills, and attitude required in selecting, sourcing and applying appropriate and affordable technologies in the workplace.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Study/select appropriate technology	1.1 Usage of different technologies is determined based on job requirements 1.2 Appropriate technology is selected as per work specification	1.1 Awareness on technology and its function 1.2 Operating instructions 1.3 Communication techniques 1.4 Health and safety procedure 1.5 Company policy in relation to relevant technology	1.1 Relevant technology application/implementation 1.2 Basic communication skills 1.3 Software applications skills
2. Apply relevant technology	2.1 Relevant technology is effectively used in carrying out function 2.2 Applicable software and hardware are used as per task requirement 2.3 Management concepts are observed and practiced as per established industry practices	2.1 Awareness on technology and its function 2.2 Operating instructions 2.3 Applicable software 2.4 Communication techniques 2.5 Health and safety procedure 2.6 Company policy in relation to relevant technology 2.7 Different management concepts 2.8 Technology adaptability	2.1 Relevant technology application/implementation 2.2 Basic communication skills 2.3 Software applications skills

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Maintain/enhance relevant technology	3.1 Maintenance of technology is applied in accordance with the <i>industry standard operating procedure, manufacturer's operating guidelines and occupational health and safety procedure</i> to ensure its operative ability 3.2 Updating of technology is maintained through continuing education or training in accordance with job requirement 3.3 Technology failure/ defect is immediately reported to the concern/responsible person or section for <i>appropriate action</i>	3.1 Awareness on technology and its function 3.2 Repair and maintenance procedure 3.3 Operating instructions 3.4 Communication techniques 3.5 Health and safety procedure	3.1 Relevant technology application/implementation 3.2 Basic communication skills 3.3 Software applications skills 3.4 Basic troubleshooting skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. Technology	May include: 1.1 Office technology 1.2 Industrial technology 1.3 System technology 1.4 Information technology 1.5 Training technology
2. Management concepts	May include: 2.1 Real Time Management 2.2 KAIZEN or continuous improvement 2.3 5 S 2.4 Total Quality Management 2.5 Other management/productivity tools
3. Industry standard operating procedure	3.1 Written guidelines relative to the usage of office technology/equipment 3.2 Verbal advise/instruction from the co-worker
4. Manufacturer's operating guidelines/instructions	4.1 Written instruction/manuals of specific technology/equipment 4.2 General instruction manual 4.3 Verbal advise from manufacturer relative to the operation of equipment
5. Occupational health and safety procedure	5.1 Relevant statutes on OHS 5.2 Company guidelines in using technology/equipment
6. Appropriate action	6.1 Implementing preventive maintenance schedule 6.2 Coordinating with manufacturer's technician

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Studied and selected appropriate technology consistent with work requirements 1.2 Applied relevant technology 1.3 Maintained and enhanced operative ability of relevant technology
2. Resource Implications	The following resources should be provided: 2.1 Relevant technology 2.2 Interview and demonstration questionnaires 2.3 Assessment packages
2. Methods of Assessment	Competency in this unit may be assessed through: 3.1 Interview 3.2 Actual demonstration 3.3 Authenticated portfolio (related certificates of training/seminar)
4. Context for Assessment	4.1 Competency may be assessed in actual workplace or simulated environment

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 <i>Italicized terms</i> 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	2.1 Uses and functions of tools 2.2 Outfits and how to wear it. 2.3 Expiration/shelf life of materials	2.1 Using tools and materials

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.2 Outfits are worn according to farm requirements 2.3 Effectivity/shelf life/expiration of materials are strictly observed 2.4 Emergency procedures are known and followed to ensure a safe work requirement 2.5 Hazards in the workplace are identified and reported in line with farm guidelines	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	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 Safe keep /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 manufacturers 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 Labelling 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. Method of Assessment	Competency in this unit must be assessed through: 3.1 Practical demonstration 3.2 Third Party Report
4. Context of 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 : USE FARM TOOLS AND EQUIPMENT

UNIT CODE : AFF321202

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to use farm tools and equipment. It includes selection, operation and preventive maintenance of farm tools and equipment.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Select and use farm tools	1.1 Appropriate farm tools are identified according to requirement/use 1.2 Farm tools are checked for faults and defective tools reported in accordance with farm procedures 1.3 Appropriate tools are safely used according to job requirements and manufacturers conditions	1.1 Types and uses of farm tools 1.2 Characteristics of functional tools 1.3 Checking tools for defects/faults 1.4 Segregation and reporting defective tools 1.5 Uses of tools and equipment	1.1 Identifying farm tools for the work 1.2 Checking the conditions of tools 1.3 Reporting defective tools 1.4 Using tools
2. Select and operate farm equipment	2.1 Identify appropriate farm equipment 2.2 Instructional manual of the farm tools and equipment are carefully read prior to operation 2.3 Pre-operation check-up is conducted in line with	2.1 Types and operations of farm equipment 2.2 Standards operating procedures of farm equipment 2.3 Instructional manual of equipment 2.4 Pre-operation check-up 2.5 Equipment Specification 2.6 Procedures in calibrating and use of equipment	2.1 Identifying appropriate farm equipment for the work 2.2 Reading instructional manual. 2.3 Conducting pre-operation check-up 2.4 Identifying faults/defects of farm equipment 2.5 Reporting on defective farm equipment

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>manufacturers manual</p> <p>2.4 Faults in farm equipment are identified and reported in line with farm procedures</p> <p>2.5 Farm equipment used according to its function</p> <p>2.6 Safety procedures are followed.</p>	<p>2.7 Equipment faults identification and reporting</p> <p>2.8 Operation of equipment</p> <p>2.9 Codes and Regulations on environmental protection</p> <p>2.10 Safety and keeping of equipment every after use</p> <p>2.11 Safety measures</p>	<p>2.6 Operating farm equipment</p> <p>2.7 Following safety procedures.</p>
3. Perform preventive maintenance	<p>3.1 Tools and equipment are cleaned immediately after use in line with farm procedures</p> <p>3.2 Routine check-up and maintenance are performed</p> <p>3.3 Tools and equipment are stored in designated areas in line with farm procedures</p>	<p>3.1 Cleaning procedures of tools and equipment</p> <p>3.2 Maintenance procedures of farm equipment</p> <p>3.3 Storage of tools and equipment</p> <p>3.4 Designated storage areas</p>	<p>3.1 Cleaning tools and equipment</p> <p>3.2 Performing routinary check-up of tools and equipment</p> <p>3.3 Maintaining farm equipment</p> <p>3.4 Storing tools and equipment</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Farm equipment	Farm equipment include: 1.1 Engine 1.2 Pumps 1.3 Generators 1.4 Sprayers
2. Farm tools	Farm tools includes: 2.1 Sickle 2.2 Cutters 2.3 Weighing scales 2.4 Hand tools 2.5 Measuring tools 2.6 Garden tools
3. Pre-operation check-up	Pre-operation check –up includes: 3.1 Tires 3.2 Brake fluid 3.3 Fuel 3.4 Water 3.5 Oil 3.6 Lubricants 3.7 Battery

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Correctly identified appropriate farm tools and equipment 1.2 Operated farm equipment according to manual specification 1.3 Performed preventive maintenance
2. Resource Implications	The following resources should be provided: 2.1 Service/operational manual of farm tools and equipment 2.2 Tools and equipment 2.3 Farm implements
3. Method of Assessment	Competency in this unit must be assessed through: 3.1 Direct observation 3.2 Practical demonstration 3.3 Third Party Report
4. Context of 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 <i>Italicized terms</i> 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/lab or 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	2.1 System and units of measurement to be followed are ascertained 2.2 Calculation needed to complete work tasks are performed using the four basic mathematical operation 2.3 Calculate whole fraction, percentage and mixed when are used to complete the instructions 2.4 Number computed is checked following work requirements	2.1 Four basic mathematical operation 2.2 System and units of measurement 2.3 Fraction, percentage and ratio 2.4 Material takeoff 2.5 Materials costing	2.1 Compute bill of materials 2.2 Compute project cost

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. Method of Assessment	Competency in this unit must be assessed through: 3.1 Practical demonstration 3.2 Written examination
4. Context of Assessment	4.1 Assessment may occur in the workplace or in a simulated workplace or as part of a team under limited supervision

CORE COMPETENCIES

UNIT OF COMPETENCY : SERVICE GRAINS DRYING PLANT FACILITIES

UNIT CODE : AFF723301

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to service grains (rice and corn) drying plant facilities. This also includes competencies to carry-out preparation for servicing, diagnose, service and test run the dryer and perform post-servicing activities.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Determine work requirements	1.1 <i>Servicing requirements</i> are identified based on job requisitions. 1.2 Preparation of <i>materials, tools, manuals and test instruments</i> is overseen in accordance with work requirements. 1.3 Work assigning and scheduling are done following <i>job requirements</i> and work instructions. 1.4 <i>Personal Protective Equipment</i> (PPEs) are prepared following workplace procedures and Occupational Safety and Health Standards (OSHS) 1.5 Where necessary, equipment history /documentation is consulted prior to site visit 1.6 <i>Workplace documentation</i> is prepared according to workplace procedures	1.1 Knowledge, Theory, Practices and Systems Operations 1.1 Identification of service requirements 1.2 Job requisitions 1.3 Overseeing for preparation procedures -audit tools, manual and test instruments -check integrity of tools and test instruments 1.4 Calendar of activities 1.5 Preventive maintenance record 1.5.1 Workplace documentation 1.6 Communication Written communication Verbal workplace communication 1.6.1 Safety Practices PPE 1.6.2 Codes and Regulations OSHS 1.7 Mathematics and Mensuration 1.7.1 Basic statistics (Data correlation, Averaging) 1.7.2 Basic trigonometry (calculations of angles, surface generations) 1.8 Materials, Tools and Equipment: Uses,	1.1 Identifying service requirements 1.2 Analyzing scope of works 1.3 Monitoring preparation procedures 1.4 Interpreting calendar of activities 1.5 Assigning work 1.6 Practicing workplace safety 1.7 Analyzing equipment history / documentation 1.8 Preparing workplace documentation 1.9 Practicing basic statistics and trigonometry

ELEMENT	PERFORMANCE CRITERIA Italicized terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		Specifications and Maintenance 1.8.1 Tools and Equipment, Materials <ul style="list-style-type: none"> ▪ Can understand and follow instructional manuals ▪ Parts and functions/specifications and uses of grains dryer, quality control tools/ instruments ▪ Where to source good quality supplies and materials 1.9 Maintenance <ul style="list-style-type: none"> 1.9.1 Regular upkeep of various tools and equipment 1.9.2 Preventive maintenance of various equipment and tools 1.10 Attitude <ul style="list-style-type: none"> 1.10.1 Safety and health consciousness 1.10.2 Resourcefulness 1.10.3 Diligence 1.10.4 Time consciousness 1.10.5 Cost-consciousness 1.10.6 Personal integrity in doing routine management practices 1.10.7 Perseverance in executing routine works 1.10.8 Ability to work with others harmoniously 	

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Diagnose grains drying plant facility	<p>2.1 Machine troubles are analyzed using applicable diagnostic tests and methods.</p> <p>2.2 Machinery faults and malfunctions are identified based on results of diagnostic tests.</p> <p>2.3 Service manuals and parts catalogue are referred as necessary in regard to repair and replacement according to enterprise requirements.</p> <p>2.4 Personal Protective Equipment (PPEs) are worn as per work requirement.</p> <p>2.5 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS)</p> <p>2.6 Diagnosis findings including recommendations for necessary repairs or adjustments are reported according to workplace procedures</p>	<p>2.1 Knowledge, Theory, Practices and Systems Operations</p> <p>2.1.1 Machine troubles</p> <ul style="list-style-type: none"> - Different symptoms or common machine troubles <p>2.1.2 Diagnostic tests and methods</p> <p>2.1.3 Type of dryer</p> <ul style="list-style-type: none"> - Drying components - Machinery faults and malfunctions <p>2.1.4 Communication</p> <ul style="list-style-type: none"> - Written communication - Verbal communication <p>2.1.5 Mathematics and Mensuration</p> <p>2.1.6 Four fundamental operations</p> <p>2.1.7 Safety</p> <ul style="list-style-type: none"> - PPE <p>2.1.8 Code</p> <ul style="list-style-type: none"> - PAES - OSHS <p>2.2 Materials, Tools and Equipment: Uses, Specifications and Maintenance</p> <p>2.2.1 Tools and Equipment Materials</p> <p>2.2.2 Attitude</p> <p>2.2.3 Safety and health consciousness</p> <p>2.2.4 Resourcefulness</p> <p>2.2.5 Diligence</p> <p>2.2.6 Time consciousness</p> <p>2.2.7 Personal integrity in doing routine management practices</p> <p>2.2.8 Perseverance in executing routine works</p> <p>2.2.9 Ability to work with others harmoniously</p>	<p>2.1 Employing applicable diagnostic tests and methods</p> <p>2.2 Analyzing symptoms</p> <p>2.3 Using service manuals and parts</p> <p>2.4 Developing service checklist</p> <p>2.5 Practicing safety measures</p> <p>2.6 Reporting findings of diagnosis, including recommendation for repairs and adjustments</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Repair and maintain grain drying facility and equipment	3.1 Personal Protective Equipment (PPEs) are worn as per work requirement. 3.2 Work area is secured according to workplace procedures. 3.3 Repair and replacement process is implemented according to enterprise requirements, manufacturer's specifications and OSHS. 3.4 Clearing of obstructions from ducting, chutes and conveyors are done in accordance with manufacturer's manual. 3.5 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS). 3.6 Where necessary, service unit is installed to minimize downtime	3.1 Work area 3.2 Nomenclature of standard parts 3.3 Repair and replacement process -Basic fabrication of defective components -Greasing of bearing fittings -Alignment of rotating shafts and transmission drive 3.4 Communication 3.4.1 Verbal communication 3.5 Mathematics and Mensuration 3.6 SAFETY - PPE 3.7 CODE - OSHS	3.1 Using PPE 3.2 Securing work area 3.3 Implementing repair and replacement 3.4 Clearing of obstructions from ducting, chutes and conveyors 3.5 Practicing OSHS 3.6 Installing service units
4. Test run grains drying plant facility	4.1 Personal Protective Equipment (PPEs) are worn as per work requirement. 4.2 Ocular inspection of serviced components are done according to approved checklist. 4.3 Test run of dryer components is carried out according to workplace procedures and service manual. 4.4 Zeal of dryer are inspected according to approved checklist 4.5 Operating conditions are adjusted based on client's requirements	4.1 Functional testing of components 4.2 Operator's manual 4.3 PAES 4.4 OSHS 4.5 Use of Tools 4.6 Use of PPE 4.7 Communication - Verbal - Hand signals	4.1 Observing safety in workplace 4.2 Observing quality standard in work checklist 4.3 Performing test run of dryer 4.4 Inspecting zeal of dryers 4.5 Familiarity in operator's manual 4.6 Adjusting optimum operating condition of dryer component 4.7 Interpreting/ writing test run report

ELEMENT	PERFORMANCE CRITERIA Italicized terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	and machine operating limits. 4.6 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS).		
5. Perform post-servicing activities	5.1 Personal Protective Equipment (PPEs) are worn as per work requirement 5.2 Machine is shutdown according to operator's manual. 5.3 Wastes are disposed of in accordance with environmental guidelines. 5.4 Tools and equipment are checked and stored according to workplace procedures. 5.5 Work areas are cleaned and maintained according to OSHS and enterprise requirements. 5.6 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS). 5.7 Service documentation is completed and updated according to workplace procedures.	5.1 Procedures of shutting down machine 5.2 Wastes management 5.3 Environmental rules and regulations 5.4 Inspection and storage of tools and equipment 5.5 Maintenance of work areas 5.6 OSHS 5.7 Service documentation	5.1 Practicing OSHS 5.2 Shutting down machines 5.3 Disposing wastes 5.4 Checking and storing tools and equipment 5.5 Cleaning and maintaining work area 5.6 Completing service documentation 5.7 Accomplishing report checklist

RANGE OF VARIABLE

VARIABLE	RANGE
1. Servicing requirements	1.1 Repair 1.2 Replacement 1.3 Preventive maintenance 1.4 Installation
2. Tools, manuals and test instruments	Tools, manuals and test instruments may include but not limited to: 1.1 Open-end wrench 1.2 Box wrench

VARIABLE	RANGE
	1.3 Level 1.4 Tape measure 1.5 Adjustable wrench 1.6 Lever wrench pliers 1.7 Sets of screw driver 1.8 Riveter 1.9 Allen wrench set 1.10 Clamp ammeter 1.11 Multimeter 1.12 Thermometer 1.13 Anemometer 1.14 Manometer 1.15 Tachometer 1.16 Puller 1.17 Service manuals 1.18 Checklist
3. Personal Protective Equipment	Personal Protective Equipment may include but not limited to: 3.1 Mask 3.2 Gloves 3.3 Goggles 3.4 Ear muffs 3.5 Eye shield 3.6 Coverall
4. Workplace documentation	4.1 Checklist 4.2 Inspection reports 4.3 Equipment history 4.4 PM record and schedule
5. Diagnostic methods	5.1 Sensory methods <ul style="list-style-type: none"> - Visual check - Smell - Sound - Touch 5.2 Using test instruments <ul style="list-style-type: none"> - Tachometer - Caliper - Multimeter - Thermometer - Manometer
6. Machine troubles	6.1 Unusual noise/sounds 6.2 Excessive heat 6.3 Uneven airflow 6.4 Insufficient drying 6.5 Uneven grain flow
7. Machinery faults and malfunctions	7.1 Loose bolts and nuts 7.2 Misaligned belts and pulleys 7.3 Worn-out bearing 7.4 Deformed shafting and keyways 7.5 Worn-out ducts and spouts 7.6 Defective igniter 7.7 Corroded parts 7.8 Blown-out fuses and magnetic contactor

VARIABLE	RANGE
8. Repair and replacement	<p>8.1 Replacement of missing parts</p> <ul style="list-style-type: none"> - Grease fitting - Bearings - Pulleys - Set crews - Nuts and bolts - Wirings - Worn-out bearing <p>8.2 Repair defective components:</p> <ul style="list-style-type: none"> - Loose bolts and nuts - Misaligned belts and pulleys - Deformed shafting and keyways - Worn-out ducts and spouts - Defective igniter - Corroded parts - Blown-out fuses and magnetic contactor
9. Type of dryer	<p>Type of dryer may include:</p> <p>9.1 Batch-type</p> <ul style="list-style-type: none"> - Flatbed - Recirculating type - columnar <p>9.2 Continuous-flow</p> <ul style="list-style-type: none"> - Non-mixing - Mixing/cross-flow <p>Standards refers to PNS:PAES 201 Specification for heated-air mechanical dryer</p>
10. Drying components	<p>Drying components:</p> <p>10.1 Bin component may be constructed from:</p> <ul style="list-style-type: none"> - metal sheet - pre-cast concrete <p>10.2 Heat source may be include:</p> <ul style="list-style-type: none"> - conventional fuel-burning furnace - biomass fuel furnace <p>10.3 Ancillary equipment may include:</p> <ul style="list-style-type: none"> - grain elevator - grain conveyor - chute - primary air blower - secondary air blower - grain spreader - moisture sensor - temperature sensor - dust collection equipment - pre-cleaner - fuel gage - control panel

VARIABLE	RANGE
	<p>10.4 Power transmission component may include:</p> <ul style="list-style-type: none"> - gear-drive - belt-drive - chain-drive - shafting - bearings - pulleys
11 Missing parts	<p>Missing parts may include:</p> <ul style="list-style-type: none"> 11.1 Grease fitting 11.2 Bearings 11.3 Pulleys 11.4 Set crews 11.5 Nuts and bolts 11.6 Wirings
12 Defective	<p>Defective refers as a result of:</p> <ul style="list-style-type: none"> 12.1 Rusting 12.2 Cracking 12.3 Cramping 12.4 Tearing
13 Rotating shafts	<p>Rotating shafts may include:</p> <ul style="list-style-type: none"> 13.1 Pulley shaft 13.2 Eccentric shaft 13.3 Auger shaft
14 Operating conditions	<p>Operating conditions may include but not limited to:</p> <ul style="list-style-type: none"> 14.1 Chute opening 14.2 Speed of adjustable pulley 14.3 Length of stroke of oscillator 14.4 Feeding of fuel 14.5 Speed of engine 14.6 Speed of blower 14.7 Belt drive tension
15 Zeal	<p>Zeal may include:</p> <ul style="list-style-type: none"> 15.1 Less vibration 15.2 Less noise 15.3 Balance of shaft
16 Waste	<p>Waste may include but not limited to:</p> <ul style="list-style-type: none"> 16.1 Paint container 16.2 Paint brush 16.3 Sanding paper 16.4 Grinding wheel 16.5 Debris 16.6 Replaced dryer components
17 Service documentation	<ul style="list-style-type: none"> 17.1 After sales record 17.2 Preventive maintenance record 17.3 Service report

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: <ul style="list-style-type: none"> 1.1 Prepared tools, manuals and test instruments 1.2 Checked dryer 1.3 Repaired defective fabricated components 1.4 Replaced missing standard parts 1.5 Test run dryer 1.6 Performed post-servicing activities
2. Resource Implications	The following resources should be provided: <ul style="list-style-type: none"> 2.1. Dryer processing plant 2.2. Tools/ instruments/ equipment 2.3. Writing device 2.4. Supplies 2.5. Logbooks 2.6. References (service manual/ catalogue, protocols, OHSP and GAP manuals) 2.7. Production guide
3. Method of Assessment	Competency in this unit may be assessed through: <ul style="list-style-type: none"> 3.1. Direct Observation 3.2. Demonstration 3.3. Oral interview and/or written test
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY : SERVICE RICE MILLING PLANT FACILITY

UNIT CODE : AFF723302

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to service rice milling plant facility. This also includes proper use of tools and equipment, maintain and operate the rice mill.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare tools, manuals and test instruments	<p>1.1. <i>Tools, manuals and test instruments</i> are selected in accordance with manufacturer's specifications</p> <p>1.2. Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS)</p> <p>1.3. Inspection and segregation of defective tools and test instruments are done according to workplace procedures.</p> <p>1.4. Adjustment of test instruments is carried-out according to manuals.</p>	<p>1.1 Knowledge, Theory, Practices and Systems Operations</p> <p>1.2 Inspection and checking procedures of various tools and instruments.</p> <p>1.3 Use of instruments</p> <p>1.4 Communication</p> <p>1.4.1 Methods of accomplishing forms and checklists</p> <p>1.4.2 Procedures on reporting of defects, to immediate head/supervisor</p> <p>1.4.3 Recording and reporting</p> <p>1.5 Safety Practices</p> <p>1.5.1 Occupational Health and Safety Standards</p> <p>1.6 Codes and Regulations</p> <p>1.6.1 Good Agriculture Practice Standards</p> <p>1.6.2 Philippine Agricultural Engineering Standards</p> <p>1.7 Mathematics and Mensuration</p> <p>1.7.1 Four fundamental operations (addition, subtraction, multiplication and division)</p>	<p>2.1 Demonstrating proper handling of tools and instruments</p> <p>2.2 Interpreting service manuals</p> <p>2.3 Selecting tool, manuals and test instruments</p> <p>2.4 Applying OSHS</p> <p>2.5 Inspecting and segregating defective tools and equipment</p> <p>2.6 Adjusting test instruments</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		1.7.2 Conversions (metric and English system) for weights and measures 1.7.3 Ratio and proportions 1.8 Materials, Tools and Equipment: Uses, Specifications and Maintenance Tools and Equipment 1.8.1 Can understand and follow instructional manuals 1.8.2 Parts and functions of equipment, quality control tools/ instruments Materials 1.8.3 Where to source good quality supplies and materials in line with preparation activities. Maintenance 1.8.4 Regular upkeep of various tools and equipment 1.8.5 Preventive maintenance of various equipment and tools 1.9 Values/attitudes 1.9.1 Safety and health consciousness 1.9.2 Resourcefulness 1.9.3 Diligence 1.9.4 Time consciousness 1.9.5 Cost-consciousness 1.9.6 Personal integrity in doing routine	

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		management practices 1.9.7 Perseverance in executing routine works 1.9.8 Ability to work with others harmoniously	
2. Inspect rice mill	2.1 Personal Protective Equipment (PPEs) are selected and worn as per work requirement. 2.2 Type of rice mill is identified according to established standards. 2.3 Inspections of rice mill components are conducted following manufacturer's manual. 2.4 Ancillary equipment is checked following manufacturer's manual. 2.5 Power transmission is examined following manufacturer's manual. 2.6 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS)	2.1 Knowledge, Theory, Practices and Systems Operations 2.1.1 Proper use of tools and instrument. 2.1.2 Proper interpretation of plans and blueprints. 2.1.3 Function of tools and measuring instruments 2.2 Communication 2.2.1 Methods of accomplishing forms and checklists 2.2.2 Procedures on reporting of defects, to immediate head/supervisor 2.2.3 Recording and reporting 2.3 Safety Practices 2.3.1 Occupational Health and Safety Standards 2.4 Codes and Regulations 2.3.2 Philippine Agricultural Engineering Standards 2.5 Mathematics and Mensuration 2.5.1 Four fundamental operations (addition, subtraction,	2.1 Practicing OSHS 2.2 Demonstrating familiarity of rice mill parts and components 2.3 Inspecting the rice mill components 2.4 Checking ancillary equipment 2.5 Examining power transmission 2.6 Demonstrating proper handling of tools and instruments 2.7 Demonstrating Interpretation of service manuals

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		<p>multiplication and division)]</p> <p>2.5.2 Conversions (metric and English system) for weights and measures</p> <p>2.5.3 Ratio and proportions</p> <p>2.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance Tools and Equipment</p> <p>2.6.1 Can understand and follow instructional manuals</p> <p>2.6.2 Parts and functions of equipment, quality control tools/ instruments</p> <p>Materials</p> <p>2.6.3 Where to source good quality supplies and materials</p> <p>Maintenance</p> <p>2.6.4 Regular upkeep of various tools and equipment</p> <p>2.6.5 Preventive maintenance of various equipment and tools</p> <p>2.7 Values/attitudes</p> <p>2.7.1 Safety and health consciousness</p> <p>2.7.2 Resourcefulness</p> <p>2.7.3 Diligence</p> <p>2.7.4 Time consciousness</p> <p>2.7.5 Cost-consciousness</p>	

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.7.6 Personal integrity in doing routine management practices 2.7.7 Perseverance in executing routine works 2.7.8 Ability to work with others harmoniously	
3. Perform servicing of rice mill	3.1 Personal Protective Equipment (PPEs) are selected and worn as per work requirement. 3.2 <i>Missing standards parts</i> are replaced. 3.3 <i>Defective</i> fabricated components are repaired. 3.1. Bearing fittings are properly greased. 3.2. <i>Rotating shafts</i> are aligned. 3.3. Transmission drive are aligned. 3.4. <i>Debris</i> are removed. 3.5. Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS).	3.1 Knowledge, Theory, Practices and Systems Operations 3.1.1 Proper use of tools and instrument. 3.1.2 Proper interpretation of plans and blueprints. 3.1.3 Function of tools and measuring instruments 3.2 Communication 3.2.1 Methods of accomplishing forms and checklists 3.2.2 Procedures on reporting of defects, to immediate head/supervisor 3.2.3 Recording and reporting 3.3 Safety Practices 3.3.1 Occupational Health and Safety Standards 3.4 Codes and Regulations 3.4.1 Philippine Agricultural Engineering Standards	3.1 Wearing PPE 3.2 Applying OSHS 3.3 Replacing missing standard parts 3.4 Repairing defective components 3.5 Greasing bearing fittings 3.6 Aligning shafts 3.7 Aligning transmission drive 3.8 Removal of debris in the system 3.9 Demonstrating proper handling of tools and instruments

		<p>3.5 Mathematics and Mensuration</p> <p>3.5.1 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>3.5.2 Conversions (metric and English system) for weights and measures</p> <p>3.5.3 Ratio and proportions</p> <p>3.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance Tools and Equipment</p> <p>3.6.1 Can understand and follow instructional manuals</p> <p>3.6.2 Parts and functions of equipment, quality control tools/ instruments</p> <p>Materials</p> <p>3.6.3 Where to source good quality supplies and materials</p> <p>Maintenance</p> <p>3.6.4 Regular upkeep of various tools and equipment</p> <p>3.6.5 Preventive maintenance of various equipment and tools</p> <p>3.7 Values/attitudes</p> <p>3.7.1 Safety and health consciousness</p> <p>3.7.2 Resourcefulness</p> <p>3.7.3 Diligence</p> <p>3.7.4 Time consciousness</p> <p>3.7.5 Cost-consciousness</p>	<p>3.10 Interpreting service manuals</p>
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ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		3.7.6 Personal integrity in doing routine management practices 3.7.7 Perseverance in executing routine works 3.7.8 Ability to work with others harmoniously	
4. Test run rice mill	4.1 Personal Protective Equipment (PPEs) are selected and worn as per work requirement. 4.2 Ocular inspection of serviced components are done according to <i>approved checklist</i> . 4.3 Rice mill components are operated according to operator's manual. 4.4 Operating conditions are adjusted as directed by client's specifications 4.5 Zeal of rice mill are observed according to approved checklist. 4.6 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS).	4.1 Knowledge, Theory, Practices and Systems Operations 4.1.1 Proper use of tools and instrument. 4.1.2 Proper interpretation of plans and blueprints. 4.1.3 Function of tools and measuring instruments 4.2 Communication 4.2.1 Methods of accomplishing forms and checklists 4.2.2 Procedures on reporting of defects, to immediate head/supervisor 4.2.3 Recording and reporting 4.3 Safety Practices 4.3.1 Occupational Health and Safety Standards 4.4 Codes and Regulations 4.4.1 Philippine Agricultural Engineering Standards	4.1 Practicing OSHS 4.2 Performing ocular inspection of serviced components 4.3 Operate rice mill component for test run purposes 4.4 Adjusting operating conditions of components 4.5 Observing zeal of rice mill 4.6 Accomplishing monitoring checklist 4.7 Demonstrating proper handling of tools and instruments 4.8 Interpreting service manuals

		<p>4.5 Mathematics and Mensuration</p> <p>4.5.1 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>4.5.2 Conversions (metric and English system) for weights and measures</p> <p>4.5.3 Ratio and proportions</p> <p>4.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance Tools and Equipment</p> <p>4.6.1 Can understand and follow instructional manuals</p> <p>4.6.2 Parts and functions of equipment, quality control tools/ instruments</p> <p>Materials</p> <p>4.6.3 Where to source good quality supplies and materials</p> <p>Maintenance</p> <p>4.6.4 Regular upkeep of various tools and equipment</p> <p>4.6.5 Preventive maintenance of various equipment and tools</p> <p>4.7 Values/attitudes</p> <p>4.7.1 Safety and health consciousness</p> <p>4.7.2 Resourcefulness</p> <p>4.7.3 Diligence</p> <p>4.7.4 Time consciousness</p> <p>4.7.5 Cost-consciousness</p>	
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ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		4.7.6 Personal integrity in doing routine management practices 4.7.7 Perseverance in executing routine works 4.7.8 Ability to work with others harmoniously	
5. Perform post-servicing activities	5.1 Personal Protective Equipment (PPEs) are selected and worn as per work requirement 5.2 Machine is shutdown according to operator's manual. 5.3 Waste are disposed according to environmental guidelines. 5.4 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS). 5.5 Record and report is prepared following workplace procedures	5.1 Knowledge, Theory, Practices and Systems Operations 5.1.1 Proper use of tools and instruments 5.1.2 Proper interpretation of plans and blueprints 5.1.3 Function of tools and measuring instruments 5.2 Communication 5.2.1 Methods of accomplishing forms and checklists 5.2.2 Procedures on reporting of defects, to immediate head/supervisor 5.2.3 Recording and reporting 5.3 Safety Practices 5.3.1 Occupational Health and Safety Standards 5.4 Codes and Regulations 5.4.1 Philippine Agricultural	5.1 Applying OSHS practices 5.2 Shutting down of machine 5.3 Disposing of wastes 5.4 Demonstrating proper handling of tools and instruments 5.5 Interpreting service manuals 5.6 Keeping records 5.7 Preparing report

		<p>Engineering Standards</p> <p>5.5 Mathematics and Mensuration</p> <p>5.5.1 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>5.5.2 Conversions (metric and English system) for weights and measures</p> <p>5.5.3 Ratio and proportions</p> <p>5.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance</p> <p>Tools and Equipment</p> <p>5.6.1 Can understand and follow instructional manuals</p> <p>5.6.2 Parts and functions of equipment, quality control tools/ instruments</p> <p>Materials</p> <p>5.6.3 Where to source good quality supplies and materials</p> <p>Maintenance</p> <p>5.6.4 Regular upkeep of various tools and equipment</p> <p>5.6.5 Preventive maintenance of various equipment and tools</p> <p>5.7 Values/attitudes</p> <p>5.7.1 Safety and health consciousness</p> <p>5.7.2 Resourcefulness</p> <p>5.7.3 Diligence</p> <p>5.7.4 Time consciousness</p>	
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ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		5.7.5 Cost-consciousness 5.7.6 Personal integrity in doing routine management practices 5.7.7 Perseverance in executing routine works 5.7.8 Ability to work with others harmoniously	

RANGE OF VARIABLE

VARIABLE	RANGE
1. Tools, manuals and test instruments	Tools, manuals and test instruments may include but not limited to: <ol style="list-style-type: none"> 1.1 Open wrench 1.2 Box wrench 1.3 Level 1.4 Tape measure 1.5 Adjustable wrench 1.6 Screw driver 1.7 Philips screw driver 1.8 Riveter 1.9 Allen wrench 1.10 Clamp ammeter 1.11 Thermometer 1.12 Anemometer 1.13 Manometer 1.14 Tachometer 1.15 Service manuals 1.16 Checklist 1.17 PPE
2. Personal Protective Equipment	Personal Protective Equipment may include but not limited to: <ol style="list-style-type: none"> 2.1 Mask 2.2 Gloves 2.3 Goggles 2.4 Ear muffs 2.5 Eye shield 2.6 Coverall
3. Type of rice mill	Type of rice mill may include: <ol style="list-style-type: none"> 3.1 Single pass 3.2 Multi-pass
4. Rice mill components	Rice mill components may include: <ol style="list-style-type: none"> 4.1 Huller component may include: <ul style="list-style-type: none"> • Rubber-roll • Under-runner • Fluted roll • centrifugal 4.2 Whitener component may include: <ul style="list-style-type: none"> • friction whitener • abrasive whitener 4.3 Polisher component may include: <ul style="list-style-type: none"> • mist polisher • friction polisher • abrasive polisher
5. Ancillary equipment	Ancillary equipment may include:

VARIABLE	RANGE
	5.1 grain elevator 5.2 grain conveyor 5.3 chute 5.4 rice hull blower 5.5 paddy separator 5.6 de-stoner 5.7 magnetic separator 5.8 pre-cleaner 5.9 dust collection equipment 5.10 rice grader 5.11 auto weigher 5.12 Electric motor 5.13 control panel
6. Power transmission	Power transmission component may include: 6.1 gear-drive 6.2 belt-drive 6.3 chain-drive 6.4 shafting 6.5 bearings 6.6 pulleys
7. Missing parts	Missing parts may include: 7.1 Grease fitting 7.2 Bearings 7.3 Pulleys 7.4 Set crews 7.5 Nuts and bolts 7.6 Wirings
8. Defective	Defective refers to as a result of: 8.1 Rusting 8.2 Clogging
9. Rotating shafts	Rotating shafts may include: 9.1 Pulley shaft 9.2 Eccentric shaft 9.3 Auger shaft
10. Debris	Debris may include: 10.1 Lodged grains 10.2 Plastic twine 10.3 Hardened dust 10.4 Sprouted grains 10.5 Stones and pebbles
11. Operator's manual	Operator's manual refers to the operating manual and sequential operation of the rice mill components.
12. Operating conditions	Operating conditions may include but not limited to: 12.1 Clearance of huller 12.2 Tension of whitener 12.3 Tension of polisher 12.4 Chute opening 12.5 Speed of adjustable pulley

VARIABLE	RANGE
	12.6 Length of stroke of oscillator 12.7 Tension of transmission belts 12.8 Speed of engine 12.9 Speed of blower 12.10 Belt drive tension
13. Zeal	Zeal may include: 13.1 Less vibration 13.2 Less noise 13.3 Balance of shaft
14. Waste	Waste may include but not limited to: 14.1 Paint container 14.2 Paint brush 14.3 Sanding paper 14.4 Grinding wheel 14.5 Debris 14.6 Replaced rice mill components

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared tools, manuals and test instruments 1.2 Checked rice mill 1.3 Replaced defective components 1.4 Replaced missing parts 1.5 Operated rice mill 1.6 Performed post-servicing maintenance
2. Resource Implications	The following resources should be provided: 2.1. Rice mill processing plant 2.2. Tools/ instruments/ equipment 2.3. Writing device 2.4. Supplies 2.5. Logbooks 2.6. References (service manual/ catalogue, protocols, OHSP and GAP manuals) 2.7. Production guide
3. Method of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration 3.3 Oral interview and/or written test 3.4 Third party report
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution

UNIT OF COMPETENCY : SERVICE CORN MILLING PLANT FACILITY

UNIT CODE : AFF723303

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to service corn milling plant facility. This also includes proper use of tools and equipment, maintain and operate the corn mill plant.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Prepare tools, manuals and test instruments	1.1 Tools, manuals and test instruments are selected in accordance with manufacturer's specifications 1.2 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS) 1.3 Inspection and segregation of defective tools and test instruments are done according to workplace procedures. 1.4 Adjustment of test instruments is carried-out according to manuals.	1.1 Knowledge, Theory, Practices and Systems Operations 1.1.1 Inspection and checking procedures of various tools and instruments. 1.1.2 Use of instruments 1.2 Communication 1.2.1 Methods of accomplishing forms and checklists 1.2.2 Procedures on reporting of defects, to immediate head/supervisor 1.2.3 Recording and reporting 1.3 Safety Practices 1.3.1 Occupational Health and Safety Standards 1.4 Codes and Regulations 1.4.1 Good Agriculture Practice Standards 1.4.2 Philippine Agricultural Engineering Standards 1.5 Mathematics and Mensuration 1.5.1 Four fundamental operations	1.1 Demonstrating proper handling of tools and instruments 1.2 Interpreting service manuals 1.3 Selecting tool, manuals and test instruments 1.4 Applying OSHS 1.5 Inspecting and segregating defective tools and equipment 1.6 Adjusting test instruments

		<p>(addition, subtraction, multiplication and division)</p> <p>1.5.2 Conversions (metric and English system) for weights and measures</p> <p>1.5.3 Ratio and proportions</p> <p>1.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance</p> <p>Tools and Equipment</p> <p>1.6.1 Can understand and follow instructional manuals</p> <p>1.6.2 Parts and functions of equipment, quality control tools/ instruments</p> <p>Materials</p> <p>1.6.3 Where to source good quality supplies and materials in line with preparation activities.</p> <p>Maintenance</p> <p>1.6.4 Regular upkeep of various tools and equipment</p> <p>1.6.5 Preventive maintenance of various equipment and tools</p> <p>1.7 Values/attitudes</p> <p>1.7.1 Safety and health consciousness</p> <p>1.7.2 Resourcefulness</p> <p>1.7.3 Diligence</p> <p>1.7.4 Time consciousness</p> <p>1.7.5 Cost-consciousness</p>	
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ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		1.7.6 Personal integrity in doing routine management practices 1.7.7 Perseverance in executing routine works 1.7.8 Ability to work with others harmoniously	

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Inspect corn mill	2.1. <i>Personal Protective Equipment (PPEs)</i> are selected and worn as per work requirement. 2.2. Type of corn mill is identified according to established <i>standards</i> . 2.3. Corn mill component is inspected. 2.4. Grit grader component is inspected. 2.5. De-germing component is inspected. 2.6. Ancillary equipment is examined manuals 2.7. Power transmission is inspected following manuals 2.8. Safety measure are applied in accordance with Occupational Safety and Health Standards (OSHS).	2.1 Knowledge, Theory, Practices and Systems Operations 2.1.1 Proper use of tools and instrument. 2.1.2 Proper interpretation of plans and blueprints. 2.1.3 Function of tools and measuring instruments 2.2 Communication 2.2.1 Methods of accomplishing forms and checklists 2.2.2 Procedures on reporting of defects, to immediate head/supervisor 2.2.3 Recording and reporting 2.3 Safety Practices 2.3.1 Occupational Health and Safety Standards 2.4 Codes and Regulations 2.4.1 Philippine Agricultural Engineering Standards 2.5 Mathematics and Mensuration 2.5.1 Four fundamental operations (addition, subtraction, multiplication and division)	2.1 Demonstrating proper handling of tools and instruments 2.2 Demonstrating Interpretation of service manuals 2.3 Demonstrating familiarity of corn mill parts and components 2.4 Inspecting corn mill components 2.5 Checking grit grader component 2.6 Inspecting de-germinating component 2.7 Examining ancillary equipment 2.8 Inspecting power transmission

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.5.2 Conversions (metric and English system) for weights and measures 2.5.3 Ratio and proportions 2.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance Tools and Equipment 2.6.1 Can understand and follow instructional manuals 2.6.2 Parts and functions of equipment, quality control tools/instruments Materials 2.6.3 Where to source good quality supplies and materials Maintenance 2.6.4 Regular upkeep of various tools and equipment 2.6.5 Preventive maintenance of various equipment and tools 2.7 Values/attitudes 2.7.1 Safety and health consciousness 2.7.2 Resourcefulness 2.7.3 Diligence 2.7.4 Time consciousness 2.7.5 Cost-consciousness 2.7.6 Personal integrity in doing routine management practices	

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		2.7.7 Perseverance in executing routine works 2.7.8 Ability to work with others harmoniously	
3. Perform servicing of corn mill	3.1. Personal Protective Equipment(PPEs) are selected and worn as per work requirement. 3.2. Missing standard parts are replaced following instructional manuals 3.3. Defective fabricated components are repaired. 3.4. Bearing fittings are properly greased. 3.5. Rotating shafts are aligned. 3.6. Bolts and screws is tightened following manuals. 3.7. Transmission drive are aligned. 3.8. Debris are removed according to established work procedures. 3.9. Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS).	3.1 Knowledge, Theory, Practices and Systems Operations 3.1.1 Proper use of tools and instrument. 3.1.2 Proper interpretation of plans and blueprints. 3.1.3 Function of tools and measuring instruments 3.2 Communication 3.2.1 Methods of accomplishing forms and checklists 3.2.2 Procedures on reporting of defects, to immediate head/supervisor 3.2.3 Recording and reporting 3.3 Safety Practices 3.3.1 Occupational Health and Safety Standards 3.4 Codes and Regulations 3.4.1 Philippine Agricultural Engineering Standards 3.4.2 Food safety standards	3.1 Applying OSHS practices 3.2 Replacing missing standard parts 3.3 Repairing defective corn mill components 3.4 Demonstrating proper handling of tools and instruments 3.5 Interpreting service manuals 3.6 Greasing bearing fittings 3.7 Aligning rotating shafts 3.8 Tightening of bolts and screws 3.9 Aligning of transmission drive 3.10 Removing debris found in corn mill components

		<p>3.5 Mathematics and Mensuration</p> <p>3.5.1 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>3.5.2 Conversions (metric and English system) for weights and measures</p> <p>3.5.3 Ratio and proportions</p> <p>3.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance</p> <p>Tools and Equipment</p> <p>3.6.1 Can understand and follow instructional manuals</p> <p>3.6.2 Parts and functions of equipment, quality control tools/instruments</p> <p>Materials</p> <p>3.6.3 Where to source good quality supplies and materials</p> <p>Maintenance</p> <p>3.6.4 Regular upkeep of various tools and equipment</p> <p>3.6.5 Preventive maintenance of various equipment and tools</p> <p>3.7 Values/attitudes</p> <p>3.7.1 Safety and health consciousness</p> <p>3.7.2 Resourcefulness</p> <p>3.7.3 Diligence</p> <p>3.7.4 Time consciousness</p> <p>3.7.5 Cost-consciousness</p> <p>3.7.6 Personal integrity in doing routine</p>	
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ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		management practices 3.7.7 Perseverance in executing routine works 3.7.8 Ability to work with others harmoniously	
4. Test run corn mill	4.1 Personal Protective Equipment (PPEs) are selected and worn as per work requirement. 4.2 Ocular inspection of serviced components are done according to approved checklist. 4.3 Corn mill components are operated according to operator's manual. 4.4 Operating conditions are adjusted as directed by client's specifications 4.5 Zeal of corn mill are observed according to approved checklist. 4.6 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS).	4.1 Knowledge, Theory, Practices and Systems Operations 4.1.1 Proper use of tools and instrument. 4.1.2 Proper interpretation of plans and blueprints. 4.1.3 Function of tools and measuring instruments 4.2 Communication 4.2.1 Methods of accomplishing forms and checklists 4.2.2 Procedures on reporting of defects, to immediate head/supervisor 4.2.3 Recording and reporting 4.3 Safety Practices 4.3.1 Occupational Health and Safety Standards 4.4 Codes and Regulations 4.4.1 Philippine Agricultural Engineering Standards	4.1 Practicing OSHS 4.2 Performing ocular inspection of serviced components 4.3 Operate corn mills components for the purpose of test run 4.4 Adjusting operating conditions 4.5 Monitoring of zeal of corn mill 4.6 Accomplishing checklist 4.7 Demonstrating proper handling of tools and instruments 4.8 Interpreting service manuals

		<p>4.5 Mathematics and Mensuration</p> <p>4.5.1 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>4.5.2 Conversions (metric and English system) for weights and measures</p> <p>4.5.3 Ratio and proportions</p> <p>4.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance</p> <p>Tools and Equipment</p> <p>4.6.1 Can understand and follow instructional manuals</p> <p>4.6.2 Parts and functions of equipment, quality control tools/ instruments</p> <p>Materials</p> <p>4.6.3 Where to source good quality supplies and materials</p> <p>Maintenance</p> <p>4.6.4 Regular upkeep of various tools and equipment</p> <p>4.6.5 Preventive maintenance of various equipment and tools</p> <p>4.7 Values/attitudes</p> <p>4.7.1 Safety and health consciousness</p> <p>4.7.2 Resourcefulness</p> <p>4.7.3 Diligence</p> <p>4.7.4 Time consciousness</p> <p>4.7.5 Cost-consciousness</p> <p>4.7.6 Personal integrity in doing routine</p>	
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ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		management practices 4.7.7 Perseverance in executing routine works 4.7.8 Ability to work with others harmoniously	
5. Perform post-servicing activities	5.1 Personal Protective Equipment (PPEs) are selected and worn as per work requirement 5.2 Machine is shutdown according to operator's manual. 5.3 Wastes are disposed according to environmental guidelines. 5.4 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS). 5.5 Record and report are prepared according to workplace requirements.	5.1 Knowledge, Theory, Practices and Systems Operations 5.1.1 Proper use of tools and instrument. 5.1.2 Proper interpretation of plans and blueprints. 5.1.3 Function of tools and measuring instruments 5.2 Communication 5.2.1 Methods of accomplishing forms and checklists 5.2.2 Procedures on reporting of defects, to immediate head/supervisor 5.2.3 Recording and reporting 5.3 Safety Practices 5.3.1. Occupational Health and Safety Standards 5.4 Codes and Regulations 5.4.1 Philippine Agricultural	5.1 Applying OSHS procedures 5.2 Shutting down of machine 5.3 Disposing wastes 5.4 Demonstrating proper handling of tools and instruments 5.5 Interpreting service manuals 5.6 Keeping records 5.7 Preparing report

		<p>Engineering Standards</p> <p>5.5 Mathematics and Mensuration</p> <p>5.5.1 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>5.5.2 Conversions (metric and English system) for weights and measures</p> <p>5.5.3 Ratio and proportions</p> <p>5.6 Materials, Tools and Equipment: Uses, Specifications and Maintenance</p> <p>Tools and Equipment</p> <p>5.6.1 Can understand and follow instructional manuals</p> <p>5.6.2 Parts and functions of equipment, quality control tools/ instruments</p> <p>Materials</p> <p>5.6.3 Where to source good quality supplies and materials</p> <p>Maintenance</p> <p>5.6.4 Regular upkeep of various tools and equipment</p> <p>5.6.5 Preventive maintenance of various equipment and tools</p> <p>5.7 Values/attitudes</p> <p>5.7.1 Safety and health consciousness</p> <p>5.7.2 Resourcefulness</p> <p>5.7.3 Diligence</p> <p>5.7.4 Time consciousness</p>	
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ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms are elaborated in the Range of Variables</i>	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		5.7.5 Cost-consciousness 5.7.6 Personal integrity in doing routine management practices 5.7.7 Perseverance in executing routine works 5.7.8 Ability to work with others harmoniously	

RANGE OF VARIABLES

VARIABLE	RANGE
1. Tools, manuals and test instruments	<p>Tools, manuals and test instruments may include but not limited to:</p> <ul style="list-style-type: none"> 1.1 Open wrench 1.2 Box wrench 1.3 Level 1.4 Tape measure 1.5 Adjustable wrench 1.6 Lever wrench plier 1.7 Screw driver 1.8 Philips screw driver 1.9 Riveter 1.10 Allen wrench 1.11 Clamp ammeter 1.12 Thermometer 1.13 Anemometer 1.14 Manometer 1.15 Tachometer 1.16 Service manuals 1.17 Checklist 1.18 PPE
2. Personal Protective Equipment	<p>Personal Protective Equipment may include but not limited to:</p> <ul style="list-style-type: none"> 2.1 Mask 2.2 Gloves 2.3 Goggles 2.4 Ear muffs 2.5 Eye shield 2.6 Coverall
3. Type of corn mill	<p>Type of corn mill may include:</p> <ul style="list-style-type: none"> 3.1 Hammer mill 3.2 Roller mill <p>Standards refers to PNS: PAES 210 Specification for corn mill</p>
4. Corn mill component	<p>Corn mill component may be constructed from:</p> <ul style="list-style-type: none"> 4.1 metal sheet 4.2 cast iron 4.3 cold-rolled steel
5. Grit grader component	<p>Grit grader component may be include:</p> <ul style="list-style-type: none"> 5.1 Mesh screen 5.2 Perforated screen
6. De-germing component	<p>De-germing component may include:</p> <ul style="list-style-type: none"> 6.1 Abrasive roll 6.2 Fluted steel roll 6.3 Toothed disc

VARIABLE	RANGE
7. Ancillary equipment	Ancillary equipment may include: 7.1 grain elevator 7.2 grain conveyor 7.3 chute 7.4 primary air blower 7.5 suction air blower 7.6 dust collection equipment 7.7 de-stoner 7.8 control panel
8. Power transmission	Power transmission component may include: 8.1 gear-drive 8.2 belt-drive 8.3 chain-drive 8.4 shafting 8.5 bearings 8.6 pulleys
9. Missing parts	Missing parts may include: 9.1 Grease fitting 9.2 Bearings 9.3 Pulleys 9.4 Set crews 9.5 Nuts and bolts 9.6 Wirings
10. Defective	Defective refers to as a result of: 10.1 Rusting 10.2 Wear and tear 10.3 Breakage 10.4 Clogging
11. Rotating shafts	Rotating shafts may include: 11.1 Pulley shaft 11.2 Eccentric shaft 11.3 Auger shaft
12. Debris	Debris may include: 12.1 Lodged grain and grain parts 12.2 Plastic twine 12.3 Hardened dust 12.4 Sprouted grains 12.5 Stones and pebbles
13. Operating conditions	Operating conditions may include but not limited to: 13.1 Chute opening 13.2 Clearance of mill component 13.3 Speed of adjustable pulley

VARIABLE	RANGE
	13.4 Length of stroke of oscillator 13.5 Speed of motor 13.6 Speed of engine 13.7 Speed of blower 13.8 Belt drive tension
14. Zeal	Zeal may include: 14.1 Less vibration 14.2 Less noise 14.3 Balance of shaft 14.4 Suspended particle
15. Wastes	Wastes may include but not limited to: 15.1 Paint container 15.2 Paint brush 15.3 Sanding paper 15.4 Grinding wheel 15.5 Debris 15.6 Replaced corn mill components

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared tools, manuals and test instruments 1.2 Checked corn mill 1.3 Replaced defective components 1.4 Replaced missing parts 1.5 Operated corn mill 1.6 Performed post-servicing maintenance
2. Resource Implications	The following resources should be provided: 2.1. Corn mill processing plant 2.2. Tools/ instruments/ equipment 2.3. Writing device 2.4. Supplies 2.5. Logbooks 2.6. References (service manual/ catalogue, protocols, OHSP and GAP manuals) 2.7. Production guide
3. Method of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration 3.3 Oral interview and/or written test 3.4 Third party report
4. Context of Assessment	4.1 Competency may be assessed individually in the actual workplace or through accredited institution

SECTION 3 TRAINING ARRANGEMENTS

These standards are set to provide technical and vocational education and training (TVET) providers with information and other important requirements to consider when designing training programs for **DRYING AND MILLING PLANT SERVICING NC III**.

They include information on curriculum design; training delivery; trainee entry requirements; tools and equipment; training facilities; and trainer's qualification.

3.1 CURRICULUM DESIGN

TESDA shall provide the training on the development of competency-based curricula to enable training providers develop their own curricula with the components mentioned below.

Delivery of knowledge requirements for the basic, common and core units of competency specifically in the areas of mathematics, science/technology, communication/language and other academic subjects shall be contextualized. To this end, TVET providers shall develop a Contextual Learning Matrix (CLM) to green technology, issues on health and drugs and cater person with disabilities (PWD's)

Course Title: DRYING AND MILLING PLANT SERVICING NC III

Nominal Training Duration:

16 hrs	Basic Competencies
72 hrs	Common Competencies
168 hrs	Core Competencies
Total	256 hrs

Course Description:

This course is designed to provide the students/learner with knowledge, desirable attitudes and skills required to perform the following competencies in accordance with industry standards: service grains drying plant facilities, service rice milling plant facility and service corn milling plant facility.

BASIC COMPETENCIES
16 HRS

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
1. Lead workplace communication	1.1 Communicate information about workplace processes	<ul style="list-style-type: none"> • Display communications skills using verbal, written, wireless, non-verbal (standard signs and symbols of the industry) media 	<ul style="list-style-type: none"> • Lecture-Discussion • Role play 	<ul style="list-style-type: none"> • Observation • Interview 	Total: 2 hrs
		<ul style="list-style-type: none"> • Read policies and procedures in standard operating protocols 	<ul style="list-style-type: none"> • Lecture 	<ul style="list-style-type: none"> • Interview 	
	1.2 Lead workplace discussions	<ul style="list-style-type: none"> • Demonstrate interpersonal relations in discussing with superiors, colleagues, and/or subordinates 	<ul style="list-style-type: none"> • Lecture-Discussion • Small group activities 	<ul style="list-style-type: none"> • Observation 	
		<ul style="list-style-type: none"> • Demonstrate people management skills 	<ul style="list-style-type: none"> • Lecture-Discussion • Small group activities 	<ul style="list-style-type: none"> • Observation 	
		<ul style="list-style-type: none"> • Facilitate discussion among colleagues 	<ul style="list-style-type: none"> • Lecture-Discussion • Small group activities 	<ul style="list-style-type: none"> • Observation 	
	1.3 Identify and communicate issues arising in the workplace	<ul style="list-style-type: none"> • Apply safety procedures in handling equipment and machinery, waste, environment, volatile fluids and gases. 	<ul style="list-style-type: none"> • Lecture-Discussion • Demonstration 	<ul style="list-style-type: none"> • Oral/Written Test • Observation 	
		<ul style="list-style-type: none"> • Apply health and hygiene practices 	<ul style="list-style-type: none"> • Lecture-Discussion • Demonstration 	<ul style="list-style-type: none"> • Oral/Written Test • Demonstration with oral questioning 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
2. Lead small teams	2.1 Lead small teams	<ul style="list-style-type: none"> Learn concepts on people management 	<ul style="list-style-type: none"> Lecture-Discussion Small group activities' Brainstorming 	<ul style="list-style-type: none"> Observation 	2 hrs
		<ul style="list-style-type: none"> Apply oral and written communication skills in dealing with other team members 	<ul style="list-style-type: none"> Lecture-Discussion Demonstration 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
	2.2 Provide team leadership	<ul style="list-style-type: none"> Conduct team building activities as necessary 	<ul style="list-style-type: none"> Lecture-Discussion Small group activities 	<ul style="list-style-type: none"> Observation 	
	2.3 Assign responsibilities among members	<ul style="list-style-type: none"> Delegate tasks to other members of the team 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Relay instructional strategies and methodologies 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
	2.4 Set performance expectation for team members	<ul style="list-style-type: none"> Inform subordinates on performance criteria that will be observed 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
	2.5 Supervise team performance	<ul style="list-style-type: none"> Establish facilitation skills 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Apply presentation skills as necessary 	<ul style="list-style-type: none"> Individual/Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
		<ul style="list-style-type: none"> Translate ideas and concepts into implementable activities in pharmacy services 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning` 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
3. Develop and practice negotiation skills	3.1 Identify relevant information in planning negotiations	<ul style="list-style-type: none"> Obtain necessary information regarding the issue 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Observation 	2 hrs
	3.2 Participate in negotiations	<ul style="list-style-type: none"> Apply different questioning techniques 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Observation 	
		<ul style="list-style-type: none"> Use appropriate language during negotiation 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
		<ul style="list-style-type: none"> Address and implement problem solving strategies on dealing with unexpected questions and attitudes during negotiation 	<ul style="list-style-type: none"> Small group activities Lecture-Discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
	3.3 Document areas for agreement	<ul style="list-style-type: none"> Document issues and processes 	<ul style="list-style-type: none"> Lecture-discussion Simulation/role playing 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
		<ul style="list-style-type: none"> Explore different solutions that may be used 	<ul style="list-style-type: none"> Direct observation Simulation/role playing 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
		<ul style="list-style-type: none"> Written documents are filed and kept for future reference 	<ul style="list-style-type: none"> Direct observation Simulation/role playing 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
		<ul style="list-style-type: none"> Follow-up on agreements based on deadlines 	<ul style="list-style-type: none"> Demonstration with return demonstration 	<ul style="list-style-type: none"> Observation 	
	3.4 Identify relevant information in planning negotiations	<ul style="list-style-type: none"> Search for relevant information on competing products and services 	<ul style="list-style-type: none"> Lecture-discussion Simulation/role playing 	<ul style="list-style-type: none"> Demonstration with oral questioning Written Exams 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	3.5 Participate in negotiation	<ul style="list-style-type: none"> Deal with patients/clients/ service providers according to agreements discussed 	<ul style="list-style-type: none"> Lecture-discussion Simulation/role playing 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
4. Solve Problems Related to Work Activities	4.1 Explain the analytical techniques	<ul style="list-style-type: none"> Manage and control flow of resources 	<ul style="list-style-type: none"> Lecture-discussion Simulation/role playing 	<ul style="list-style-type: none"> Demonstration with oral questioning 	4 hrs
		<ul style="list-style-type: none"> Identify cause and potential effects 	<ul style="list-style-type: none"> Lecture-discussion Brainstorming 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
	4.2 Determine the possible cause/s of the problem	<ul style="list-style-type: none"> Identify deviations from normal operating procedures to maintain product quality 	<ul style="list-style-type: none"> Lecture-discussion Case Discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning Written Output 	
		<ul style="list-style-type: none"> Participate in root cause analysis session and state problems clearly 	<ul style="list-style-type: none"> Lecture-discussion Case Discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
		<ul style="list-style-type: none"> Apply problem analysis and problem solving techniques 	<ul style="list-style-type: none"> Lecture-discussion Small-group activity 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
	4.3 Prepare action plans	<ul style="list-style-type: none"> Corrective actions are determined 	<ul style="list-style-type: none"> Lecture-discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
		<ul style="list-style-type: none"> Establish action plans based on available options 	<ul style="list-style-type: none"> Lecture-discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 	
	5. Use mathematical concepts and techniques	5.1 Identify mathematical tools and techniques to solve problem	<ul style="list-style-type: none"> Identify mathematical techniques to be used in the task at hand 	<ul style="list-style-type: none"> Lecture-discussion 	
<ul style="list-style-type: none"> Develop skills in four fundamental operations 			<ul style="list-style-type: none"> Lecture Exercises 	<ul style="list-style-type: none"> Written Exercise 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration		
		<ul style="list-style-type: none"> Use calculator or computer for calculating cash change 	<ul style="list-style-type: none"> Demonstration with return demonstration Small-group activities 	<ul style="list-style-type: none"> Demonstration with oral questioning 			
	5.2 Apply mathematical procedures/solution	<ul style="list-style-type: none"> Use mathematical tools and standard formulas 	<ul style="list-style-type: none"> Lecture-discussion Individual/Group Assignments 	<ul style="list-style-type: none"> Demonstration with oral questioning Written Exam 			
		<ul style="list-style-type: none"> Use conversion formulas 	<ul style="list-style-type: none"> Lecture-discussion Individual/Group Assignments 	<ul style="list-style-type: none"> Demonstration with oral questioning Written Exams 			
		<ul style="list-style-type: none"> Ensure precisions and accuracy of results 	<ul style="list-style-type: none"> Lecture-discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning Written Exam 			
	5.3 Analyze results	<ul style="list-style-type: none"> Analyze and interpret the results based on specified requirements 	<ul style="list-style-type: none"> Lecture-discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 			
		<ul style="list-style-type: none"> Communicate the results of the analysis 	<ul style="list-style-type: none"> Lecture-discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 			
		<ul style="list-style-type: none"> Appropriate action is applied in case of error 	<ul style="list-style-type: none"> Lecture-discussion 	<ul style="list-style-type: none"> Demonstration with oral questioning 			
	6. Use relevant technologies	6.1 Identify appropriate technology	<ul style="list-style-type: none"> Follow protocols in the use of basic equipment used in the pharmacy 	<ul style="list-style-type: none"> Lecture-discussion Individual/Group Assignments 		<ul style="list-style-type: none"> Demonstration with oral questioning 	2 hrs
			<ul style="list-style-type: none"> Use relevant technology to transmit data 	<ul style="list-style-type: none"> Lecture-discussion Individual/Group Assignments 		<ul style="list-style-type: none"> Demonstration with oral questioning 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	6.2 Apply relevant technology	<ul style="list-style-type: none"> • Use software programs in computers, machines/equipment being used 	<ul style="list-style-type: none"> • Lecture-discussion • Individual/Group Assignments 	<ul style="list-style-type: none"> • Demonstration with oral questioning 	
	6.3 Maintain/enhance relevant technology	<ul style="list-style-type: none"> • Follow company policy in relation to relevant technology 	<ul style="list-style-type: none"> • Lecture-discussion • Individual/Group Assignments 	<ul style="list-style-type: none"> • Demonstration with oral questioning 	
		<ul style="list-style-type: none"> • Access protocols and references on the use of technology 	<ul style="list-style-type: none"> • Lecture-discussion • Individual/Group Assignments 	<ul style="list-style-type: none"> • Demonstration with oral questioning 	

COMMON COMPETENCIES
72 HRS

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
1. Apply safety measures in farm operations	1.1 Determine areas of concern for safety measures	<ul style="list-style-type: none"> Identify work tasks in farm operations 	<ul style="list-style-type: none"> Lecture Discussion Incomplete worksheet Power point presentation Video presentation 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Discuss safety measures in a workplace during farm operations 	<ul style="list-style-type: none"> Lecture Discussion Incomplete worksheet Power point presentation Video presentation Role playing 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Explain farm operations situations and period when to observe safety 	<ul style="list-style-type: none"> Lecture Discussion Incomplete worksheet Power point presentation Video presentation Role playing 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Identify appropriate tools, materials and outfits to be used 	<ul style="list-style-type: none"> Lecture Discussion Incomplete worksheet Power point presentation Video presentation 	Written examination Interview Oral questioning Demonstration	2 hrs
		<ul style="list-style-type: none"> Prepare tools, materials and outfits for the farm operation 	<ul style="list-style-type: none"> Lecture Discussion Power point presentation Video presentation Demonstration 	Written examination Interview Oral questioning Demonstration	2 hrs

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
	1.2 Apply appropriate safety measures	<ul style="list-style-type: none"> Enumerate uses and functions of tools and materials 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Demonstration 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Explain procedures of wearing personal protective equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
		<ul style="list-style-type: none"> Discuss topics on effectivity, shelf life and expirations of materials to be used. 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
		<ul style="list-style-type: none"> Identify the emergency procedures 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning	2 hrs
		<ul style="list-style-type: none"> Identify hazards in a farm workplace 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning	2 hrs
		<ul style="list-style-type: none"> Use tools and materials 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	2 hrs
		<ul style="list-style-type: none"> Wear personal protective equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation 	Written examination Interview Oral questioning Demonstration	0.5 hr

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Incomplete worksheet • Demonstration 		
		<ul style="list-style-type: none"> • Prepare report on hazards in the workplace 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> • Report on hazards in the workplace 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Role playing 	Written examination Interview Oral questioning Demonstration	0.5 hr
	1.3 Safekeep/dispose of tools, materials and outfit	<ul style="list-style-type: none"> • Explain cleaning and storing procedures of the used tools and outfit 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
<ul style="list-style-type: none"> • State labelling and storing procedures for unused materials 		<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	Written examination Interview Oral questioning	1 hr	
<ul style="list-style-type: none"> • Explain proper wastes disposal 		<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	Written examination Interview Oral questioning	1 hr	
<ul style="list-style-type: none"> • Clean and store used tools and outfit 		<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration 	Written examination Interview Oral questioning Demonstration	1 hr	

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Hands-on 		
		<ul style="list-style-type: none"> • Label and store unused materials 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> • Dispose waste materials 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	Written examination Interview Oral questioning Demonstration	1 hr
2.Use farm tools	2.1Select and use farm tools	<ul style="list-style-type: none"> • Identify farm tools 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> • Describe faults and defective tools 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration 	Written examination Interview Oral questioning Demonstration	1 hr

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> Discuss using of tools and equipment relating to manufacturer's manual 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Check farm tools for faults and defects 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Use tools and equipment relating to manufacturer's manual 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	2 hrs
	2.2 Select and operate farm equipment	<ul style="list-style-type: none"> Identify farm equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
		<ul style="list-style-type: none"> Explain importance of reading manufacturer's manual 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
		<ul style="list-style-type: none"> Discuss pre-operation check and its importance 	<ul style="list-style-type: none"> Discussion Power point presentation 	Written examination Interview	1 hr

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Video presentation • Incomplete worksheet 	Oral questioning	
		<ul style="list-style-type: none"> • Identify different types of faults in farm equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
		<ul style="list-style-type: none"> • Enumerate reporting procedures 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Role playing 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> • Enumerate procedures in using farm equipment 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
		<ul style="list-style-type: none"> • Discuss safety procedures for farm operation 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
		<ul style="list-style-type: none"> • Read manufacturer's manual 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> • Conduct pre-operation check-up 	<ul style="list-style-type: none"> • Discussion • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	Written examination Interview Oral questioning Demonstration	2 hrs

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> Report identified faults 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Operate farm equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on Field visit 	Written examination Interview Oral questioning Demonstration	8 hrs
		<ul style="list-style-type: none"> Follow safety procedures 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	1 hr
	2.3 Perform preventive maintenance	<ul style="list-style-type: none"> Enumerate cleaning procedures for tools and equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Discuss significance of routine check-up and maintenance 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning Demonstration	1 hr

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> Explain procedures in storing tools and equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	Written examination Interview Oral questioning	1 hr
		<ul style="list-style-type: none"> Clean tools and equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	2 hrs
		<ul style="list-style-type: none"> Perform routine check – up and maintenance 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	1 hr
		<ul style="list-style-type: none"> Store tools and equipment 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet Demonstration Hands-on 	Written examination Interview Oral questioning Demonstration	1 hr
3.Perform estimation and basic calculation	3.1 Perform estimation	<ul style="list-style-type: none"> Identify job requirements and work task/activity 	<ul style="list-style-type: none"> Lecture Discussion 	<ul style="list-style-type: none"> Written exam Oral questioning 	1 hr
		<ul style="list-style-type: none"> Identify materials and resources of job requirements 	<ul style="list-style-type: none"> Lecture Discussion 	<ul style="list-style-type: none"> Written exam Oral questioning 	1 hr
		<ul style="list-style-type: none"> Estimate time to complete work task/activity 	<ul style="list-style-type: none"> Lecture Discussion Demonstration Video presentation 	<ul style="list-style-type: none"> Written exam Oral questioning 	2 hrs

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<ul style="list-style-type: none"> Estimate quantities of materials and resources 	<ul style="list-style-type: none"> Lecture Discussion Demonstration 	<ul style="list-style-type: none"> Written exam Oral questioning 	2 hrs
		<ul style="list-style-type: none"> Prepare and submit bill of materials 	<ul style="list-style-type: none"> Lecture Discussion Demonstration 	<ul style="list-style-type: none"> Written exam Oral questioning Demonstration 	2 hrs
	3.2 Perform basic workplace calculation	<ul style="list-style-type: none"> Describe different types of calculation 	<ul style="list-style-type: none"> Lecture Discussion 	<ul style="list-style-type: none"> Written exam Oral questioning 	1 hr
		<ul style="list-style-type: none"> Discuss different methods of calculation 	<ul style="list-style-type: none"> Lecture Discussion 	<ul style="list-style-type: none"> Written exam Oral questioning 	1 hr
		<ul style="list-style-type: none"> Describe system and unit of measurement 	<ul style="list-style-type: none"> Lecture Discussion 	<ul style="list-style-type: none"> Written exam Oral questioning 	2 hrs
		<ul style="list-style-type: none"> Compute quantity of feeds, amount of fertilizer and amount of medicines using methods of calculation, system of measurement and units of measurement 	<ul style="list-style-type: none"> Lecture Discussion Demonstration 	<ul style="list-style-type: none"> Written exam Oral questioning 	3 hrs

CORE COMPETENCIES

168 HRS

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
1. Service grain drying plant facilities	1.1 Prepare tools, materials, manuals and test instruments	<ul style="list-style-type: none"> • Select appropriate tool • Inspect tools and test instruments • Prepare inspection report • Interpret service manuals • Accomplishing checklist • Prepare reports 	<ul style="list-style-type: none"> • Incomplete worksheet • Lecture/Discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	48 hrs
	1.2 Inspect dryer	<ul style="list-style-type: none"> • Interpret service manuals • Inspect drying components • Determine defects • Prepare inspection report • Use PPEs • Practice 3Rs 	<ul style="list-style-type: none"> • Lecture with Incomplete worksheet • Discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	
	1.3 Perform Servicing	3.3 Interpret service Demonstrating proper handling of tools and instruments 3.4 Interpreting service manuals 3.5 Replacing missing parts 3.6 Repairing defective fabricated components 3.7 Align rotting parts 3.8 Accomplishing checklist 3.9 Preparing report 3.10 Numeric skills	<ul style="list-style-type: none"> • Lecture/Discussion • Practical exercises • Video presentation • Self-paced learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	
	1.4 Test run the dryer	<ul style="list-style-type: none"> • Interpret operator's manuals • Adjust operating conditions of dryer component 	<ul style="list-style-type: none"> • Lecture/Discussion • Practical exercises • Video presentation 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> - Drying air temperature - Plenum pressure - Moisture gradient • Verify maintenance work results • Prepare/accomplishment report • Use PPEs • Practice 3Rs 	<ul style="list-style-type: none"> • Self-paced learning 		
	1.5 Perform post-servicing activities	<ul style="list-style-type: none"> • Verify maintenance / servicing work • Prepare accomplishment report • Use PPEs • Practice 3Rs 	<ul style="list-style-type: none"> • Lecture/Discussion • Practical exercises • Video presentation • Self- learning learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	
2. Service rice milling plant facilities	2.1 Prepare tools, manuals and test instruments	<ul style="list-style-type: none"> • Select and use appropriate tools • Inspect tools and test instruments • Prepare inspection report • Interpret service manuals • Practice 3Rs • Use PPEs 	<ul style="list-style-type: none"> • Lecture/Discussion • Group discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	80 Hrs
	2.2 Inspect rice mill	<ul style="list-style-type: none"> • Interpret service manuals • Inspect single -pass rice mill components • Inspect multi-pass rice mill components • Inspect ancillary equipment • Prepare inspection report • Use PPEs • Practice 3Rs 	<ul style="list-style-type: none"> • Lecture/Discussion • Group discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
	2.3 Perform Servicing	<ul style="list-style-type: none"> • Interpret service manuals • Interpret rice mill symptoms • Inspect rice mill components • Replacing missing parts • Repairing defective components • Replacing defective components • Verify maintenance work activities • Prepare accomplishment report • Use PPEs • Practice 3Rs 	<ul style="list-style-type: none"> • Lecture/Discussion • Group discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	
	2.4 Test run rice mill	<ul style="list-style-type: none"> • Interpret operator's manuals • Adjust operating conditions of rice mill components <ul style="list-style-type: none"> - Hulling index • Milling Test run ancillary equipment • Verify soundness of rice mill • Prepare accomplishment report • Use PPEs <ul style="list-style-type: none"> - Practice 3Rs degree 	<ul style="list-style-type: none"> • Lecture/Discussion • Group discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	
	2.5 Perform post-servicing activities	<ul style="list-style-type: none"> • Dispose waste materials • Secure tools, equipment conditions • Prepare accomplishment report • Use PPEs 	<ul style="list-style-type: none"> • Lecture/Discussion • Group discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> Practice 3Rs 			
3. Service corn milling plant facilities	3.1 Prepare tools, manuals and test instruments	<ul style="list-style-type: none"> Select appropriate tools and equipment Inspect tools and test instruments Prepare inspection report Interpret service manuals Practice 3Rs Use PPEs 	<ul style="list-style-type: none"> Lecture/Discussion Group discussion Practical exercises Self-learning 	<ul style="list-style-type: none"> Interview Written examination Demonstration 	40 hours
	3.2 Inspect corn mill	<ul style="list-style-type: none"> Interpret service manuals Inspect corn mill components Prepare inspection report Use PPEs Practice 3Rs 	<ul style="list-style-type: none"> Lecture/Discussion Group discussion Practical exercises Self-learning 	<ul style="list-style-type: none"> Interview Written examination Demonstration 	
	3.3 Perform Servicing	<ul style="list-style-type: none"> Interpret service manuals Inspect corn mill components Determine corn mill defects Removing /tightening bolts and nuts Replace missing parts Replace defective components Aligning rotting shafts Aligning transmission drives Verify maintenance procedures Apply lubrications(grease) on bearings Perform housekeeping 	<ul style="list-style-type: none"> Lecture/Discussion Group discussion Practical exercises Self-learning 	<ul style="list-style-type: none"> Interview Written examination Demonstration 	

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> • Prepare accomplishment report • Use PPEs • Practice 3Rs 			
	3.4 Test run corn mill	<ul style="list-style-type: none"> • Interpret operator's manuals • Adjust operating conditions of corn mill components <ul style="list-style-type: none"> - De-germing index - Grit ratio • Test run corn mill • Prepare accomplishment report • Use PPEs • Practice 3Rs • Perform housekeeping 	<ul style="list-style-type: none"> • Lecture/Discussion • Group discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	
	3.5 Perform post-servicing activities	<ul style="list-style-type: none"> • Verify maintenance • Prepare accomplishment report • Use PPEs • Practice 3Rs 	<ul style="list-style-type: none"> • Lecture/Discussion • Group discussion • Practical exercises • Self-learning 	<ul style="list-style-type: none"> • Interview • Written examination • Demonstration 	

3.2 TRAINING DELIVERY

The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET.

- a. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards)
- b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies;
- c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology.
- d. Assessment is based in the collection of evidence of the performance of work to the industry required standards;
- e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence.
- f. Training program allows for recognition of prior learning (RPL) or current competencies;
- g. Training completion is based on satisfactory performance of all specified competencies.

The competency-based TVET system recognizes various types of delivery modes, both on- and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:

School/Institution- Based:

- Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components.
- Supervised Industry Training (SIT) or on-the-job training (OJT) is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies as prescribed in the training regulations. It is imperative that the deployment of trainees in the workplace is adhered to training programs agreed by the institution and enterprise and status and progress of trainees are closely monitored by the training institutions to prevent opportunity for work exploitation.

Enterprise-Based:

Enterprise-based training may also be taken to mean a school or training center with one or more partner enterprise or an enterprise or group of enterprises setting up a common training facility or partnering with a school or training center.

- **Enterprise-based Training** - where training is implemented within the company in accordance with the requirements of the specific company.
- **Apprenticeship** – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation.

3.3 TRAINEE ENTRY REQUIREMENTS

Trainees or students who would like to enroll in this course should possess the following requirements:

- Able to read and write
- Able to communicate, both orally and in writing; and
- Able to perform simple computations
- Ten (10) years of basic education or two (2) years job experience in Milling and Drying

3.4 TOOLS AND EQUIPMENT

Drying and Milling Plant Servicing NC III

Recommended list of tools, equipment and materials for the training of 25 trainees for Drying and Milling Plant Servicing NC III.

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
5	Set of box wrench		Mechanical dryer		PPE:
5	- 12" adjustable	1	- Batch-type,	25	Hard hat
5	Sets Allen wrench	1	- Continuous)	25	Safety shoes
5	Steel tape measure		Rice mill	25	Dust Mask
5	Stop watch	1	- Single-pass	25	Hand Gloves
5	Sets open-end wrench	1	- Multi-pass	25	Earmuff
5	Ballpeen hammer		Corn mill facility	25	*Long Sleeve Shirt
5	Vice grip	1	- Hammer mill	25	Pairs – Goggle
5	Pliers- mechanical	1	- Roller mill	9 pcs.	Bolt w/ nut 1/2x2
5	C-clamp			5 kgs.	Grease
5	Sets socket wrench	1	Multimedia projector	25 pcs	Sanding paper #220
5	Lever-locking Pliers	1	Computer	3	Teflon Tape
5	Grease Gun	1	Screen	20 ltr	Fuel and Oil
5	Sets Flat screw driver	2	Tachometer	2 pcs.	Belt
5	Sets Philips screwdriver	2	Weighing Scale	1 pc	Pulley

5 Pcs	. Flat file 14 "	2	Diesel engine 12.5hp with base	25	Envelope
5pcs	Half -round file 14 "	2	Biomass Furnace	3 rms	Bond Paper
5 pcs	Triangular file 12 "	2	Blower	1	White Board
5 pcs	Puller - bearing 8"	1	Portable grinder	5	White Board Pen Maker
5 pcs	Puller –bearing 5"	1	Portable drill	5	Welding mask
5 pcs	Hacksaw with blade	1	Welding machine	1	Pad Paper
5 pcs	Rubber mallet	1	Drill press	25 bags	Rice Hull
15 pcs	Steel brush	1	Power cut-off	25	Face shield
5pcs	Tin snips -aviation	1	Bench grinder	10 kls	Welding rods (SMAW)
5 pcs	Tin snips straight 14"	1	Set Oxy-acetylene	2 pcs	Flat bars ¼"x2"x20'
5 pcs	Bench vise			2 pcs	Round bars 1/2 "X20'
5 pcs	Flat vise clamp 10 "			2 pcs	Angular bars 2"x2"x20'
5 pcs	Hand riveter			1	Set of drill bits
				25 pcs	Grinding discs
				25 pcs	Cutting discs
				1	Box assorted rivets
				25 pcs	Paint brush (assort. Sizes)
					Replacement parts
				1	Set rubber roll
					Assorted bearings
					Assorted bolts and nuts

Note: *Access to and use of equipment/facilities can be provided through cooperative arrangements or MOA with other partner-companies/institutions.

3.5 TRAINING FACILITIES

DRYING AND MILLING PLANT SERVICING NC III

Based on a class size of 25 students/trainees

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS
• Student/Trainee Working Space	2.00 x 2.00 per student/trainee	4.00 per student	100.00
• Lecture Room	7.00 x 5.00	35.00	35.00
• Learning Resource Center	3.00 x 5.00	15.00	15.00
• Machinery Shed <ul style="list-style-type: none">○ Wash room (male and female)	10 x 20	200	200
TOTAL AREA			350

Note: *Access to and use of equipment/facilities can be provided through cooperative arrangements of MOA with other partner-companies/institutions.

3.6 TRAINER'S QUALIFICATIONS FOR AGRICULTURE SECTOR

DRYING AND MILLING PLANT SERVICING NC III

- Must a be a holder of NTTC Level I in Drying and Milling Plant Servicing NC III
- Must be a graduate of Agricultural Engineering or Mechanical Engineering
- *Must have at least two (2) years job/industry experience for the last five (5) years

**Optional.* Only when required by the hiring institution.

Reference: TESDA Board Resolution No. 2004 03

3.7. INSTITUTIONAL ASSESSMENT

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

SECTION 4 ASSESSMENT AND CERTIFICATION ARRANGEMENT

Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards.

The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to a full qualification or employable unit(s) of competency in partial fulfillment of the requirements of the national qualification.

4.1. NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1.1 To attain the National Qualification OF **DRYING AND MILLING PLANT SERVICING NC III**, the candidate must demonstrate competence in the operation of any of the two (2) groups of competencies as listed below. Successful candidates shall be awarded a National Certificate signed by the TESDA Director General.

Drying and Milling Plant Servicing NCIII

- Service Grain Drying Plant Facilities
- Service Rice Milling Plant Facility

Drying and Milling Plant Servicing NCIII

- Service Grain Drying Plant Facilities
- Service Corn Milling Plant Facility

4.1.2 Certificates of Competency (COCs) shall be issued to candidates who have been assessed as competent in any of the following COCs (COC 1, COC 2, COC3)

COC 1: Service Grain Drying Plant Facilities

COC2 : Service Rice Milling Plant Facility

COC3 : Service Corn Milling Plant Facility

4.1.3 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.

4.1.4 Recognition of Prior Learning (RPL). Candidates who have gained competencies through education, informal training, work or life experiences may apply for recognition in a particular qualification through competency assessment.

4.1.5 The following are qualified to apply for assessment:

4.1.5.1 Graduating students/trainees of WTR-registered programs, graduates of NTR programs or graduates of formal/non-formal/informal including enterprise-based trainings related to drying and milling plant servicing industry

4.1.5.2 Industry workers in drying and milling plant servicing

- 4.1.6 Conduct of assessment and issuance of certificates shall follow the procedures manual and implementing guidelines developed for the purpose.
- 4.1.7 The guidelines on assessment and certification are discussed in detail in the “Procedures Manual on Assessment and Certification” and “Guidelines on the Implementation of the “Philippine TVET Competency Assessment and Certification System (PTCACs)”.

4.2. COMPETENCY ASSESSMENT REQUISITE

- 4.2.1 **Self-Assessment Guide.** The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment.

This document can:

- a) Identify the candidate’s skills and knowledge
- b) Highlight gaps in candidate’s skills and knowledge
- c) Provide critical guidance to the assessor and candidate on the evidence that need to be presented
- d) Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior to assessment

- 4.2.2 **Accredited Assessment Center.** Only Assessment Center accredited by TESDA is authorized to conduct competency assessment. Assessment centers undergo a quality assured procedure for accreditation before they are authorized by TESDA to manage the assessment for National Certification.

- 4.2.3 **Accredited Competency Assessor.** Only accredited competency assessor is authorized to conduct assessment of competence. Competency assessors undergo a quality assured system of accreditation procedure before they are authorized by TESDA to assess the competencies of candidates for National Certification.

4.2.3.1 Qualification of Competency Assessors

For Trainer-Assessor

- Holder of National TVET Trainer Certificate Level I (NTTC) in Drying and Milling Plant Servicing NC III
- Have at least two (2) years relevant industry experience for the last five (5) years
- Have assisted in the actual conduct of assessment to at least two (2) candidates.

For Industry-Assessor

- Holder of National Certificate in Drying and Milling Plant Servicing NC III
- Holder of Certificate of Competency (COC) in Conduct Competency Assessment under the Trainers Methodology Level I (TM I)
- Have at least two (2) years relevant industry experience for the last five (5) years
- Have assisted in the actual conduct of assessment to at least two (2) candidates.

COMPETENCY MAP FOR AGRICULTURE, FORESTRY AND FISHERY SECTOR

CORE UNITS OF COMPETENCY

Service grains
drying plant
facilities

Service rice milling
plant facility

Service corn
milling plant facility

COMMON UNITS OF COMPETENCY

Apply safety
measures in farm
operations

Use farm tools and
equipment

Perform estimation and
calculations

BASIC UNITS OF COMPETENCY

Lead workplace
communication

Lead small teams

Develop and practice
negotiation skills

Solve problems related
to work activities

Use mathematical
concepts and techniques

Use relevant
technologies

DEFINITION OF TERMS

Blower – a mechanical device that conveys air producing a stream of moving mass of drying air.

Dryer Machinery – machinery device powered either by electric motor or internal combustion engine used to lower down or remove available water from the grains through evaporation by the application of heated air.

Engine – mechanical device that converts heat energy produced by combustion of fuel into mechanical energy.

Rice Mill Machinery – machinery device to process conversion of paddy into rice which involves the removal of husk and bran to produce milled rice.

Biomass Furnace – an ancillary equipment that produce heat by burning agricultural waste.

Corn Mill Machine – a machinery device to process conversion of corn kernel into corn grits which involves the removal of cutaneous pericarp and germ and further reduce the size to produce required grit size.

Grain Elevator – an ancillary machinery equipment that conveys grains by moving a plurality of scoops or cups in a vertical motion.

Screw Conveyor – an ancillary machinery equipment that conveys grains by rotating motion in a series of plights forming an auger.

Dust Collection System – an ancillary machinery equipment composed of a centrifugal blower acting in suction whereby dust and light contaminants suspended near the grains are removed and conveyed through a series of pipes away from the clean grain.

Grain Cleaner – an ancillary machinery equipment that removes empty seed, chaffs and other impurities other than the grain.

De-stoner – an ancillary machinery equipment that removes small stones, pebbles and similar materials other than grains in an oscillating motion.

Temperature sensor – an ancillary equipment used in determining the temperature level of the drying air in a mechanical dryer.

Castables – are heat-resistant lining material made from refractory construction material suitable for biomass furnace.

Fire Bricks – are heat-resisting material used as lining material for biomass furnace.

Ancillary equipment – are components that either conveys, clean, sort, classify grains. Such equipment is optional but in most cases, are present to produce higher quality output product.

Refractory cement – is a binding element similar to cement but primarily used in high temperature material such as biomass furnace.

Standards refers to PNS: PAES 206 Specification for rice mill

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