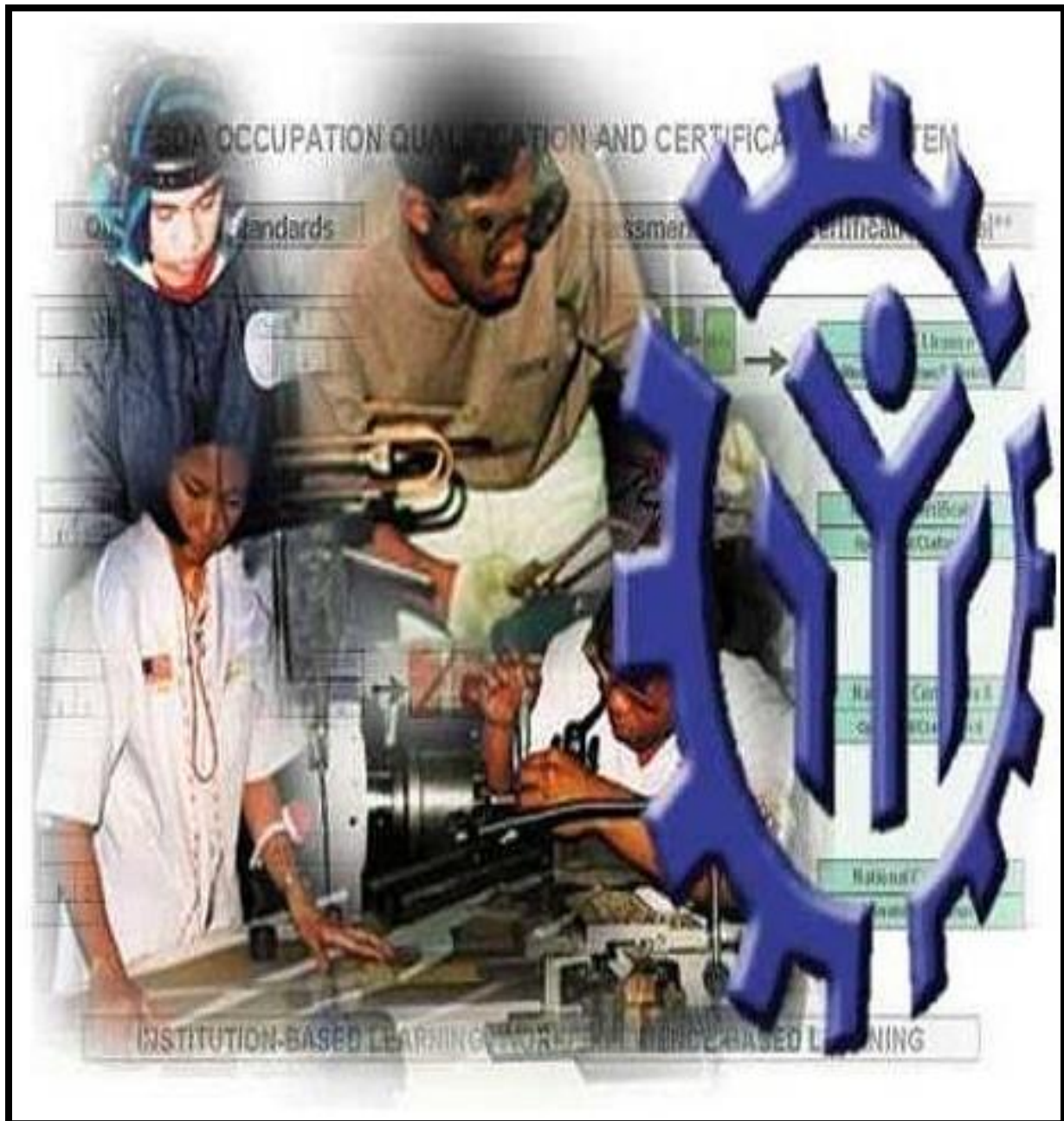


TRAINING REGULATIONS

BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II



AGRICULTURE, FORESTRY AND FISHERY SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Luzon Expressway (SLEX), Taguig City, Metro Manila

Technical Education and Skills Development Act of 1994

(Republic Act No. 7796)

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

The Training Regulations (TR) serves as basis for:

1. Development of curriculum and assessment tools
2. Registration and delivery of training programs; and
3. Establishment of competency assessment and certification arrangements.

Each TR has four sections:

- Section 1 **Definition of Qualification** - describes the qualification and defines the competencies that comprise the qualification.
- Section 2 **The Competency Standards** format was revised to include the Required Knowledge and Required Skills per element. These fields explicitly state the required knowledge and skills for competent performance of a unit of competency in an informed and effective manner. These also emphasize the application of knowledge and skills to situations where understanding is converted into a workplace outcome.
- Section 3 **Training Arrangements** – contain the information and requirements which serve as bases for training providers in designing and delivering competency-based curriculum for the qualification. The revisions to Section 3 entail identifying the Learning Activities leading to achievement of the identified Learning Outcome.
- Section 4 **Assessment and Certification Arrangements** - describe the policies governing assessment and certification procedures for the qualification.

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TRAINING REGULATIONS FOR BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II

SECTION 1 BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II QUALIFICATION

The **BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II** Qualification consists of competencies that a person must have in order to perform basic bamboo processing, carry-out treatment of semi-processed bamboo materials, perform kiln drying, perform milling operation, laminate bamboo materials, produce engineered bamboo, perform finishing and package finished product.

It also includes competencies of a person must have to be able to practice occupational safety procedures, 7S of Good Housekeeping and observing environmental rules and regulations in waste management in all farm activities.

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
400311210	Participate in workplace communication
400311211	Work in team environment
400311212	Solve/address general workplace problems
400311213	Develop career and life decisions
400311214	Contribute to workplace innovation
400311215	Present relevant information
400311216	Practice occupational safety and health policies and procedures
400311217	Exercise efficient and effective sustainable practices in the workplace
400311218	Practice entrepreneurial skills in the workplace
UNIT CODE	COMMON COMPETENCIES
AFF321201	Apply Safety Measures in Farm Operations
AFF321202	Use Farm Tools and Equipment
AFF321203	Perform Estimation and Basic Calculation
UNIT CODE	CORE COMPETENCIES
AFF752301	Perform basic bamboo processing
AFF752302	Carry out treatment of semi-processed bamboo materials
AFF752303	Perform kiln drying
AFF752304	Perform milling operation
AFF752305	Laminate bamboo materials
AFF752306	Produce engineered bamboo
AFF752307	Perform finishing

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

- **Engineered-bamboo processor**

SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the basic, common and core units of competency required in **BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II**.

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 400311210

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

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

	<p>colleagues are identified and followed</p> <p>1.6 Defined workplace procedures for the location and storage of information are used</p> <p>1.7 Personal interaction is carried out clearly and concisely</p>	<p>1.8 Workplace etiquette</p>	<p>1.8 Basic business writing skills</p> <p>1.9 Interpersonal skills in the workplace</p> <p>1.10 Active-listening skills</p>
<p>2. Perform duties following workplace instructions -</p>	<p>2.1 Written notices and instructions are read and interpreted in accordance with organizational guidelines</p> <p>2.2 Routine written instruction are followed based on established procedures</p> <p>2.3 Feedback is given to workplace supervisor based instructions/ information received</p> <p>2.4 Workplace interactions are conducted in a courteous manner</p> <p>2.5 Where necessary, clarifications about routine workplace procedures and matters concerning conditions of employment are sought and asked from appropriate sources</p> <p>2.6 Meetings outcomes are interpreted and implemented</p>	<p>2.1 Effective verbal and non-verbal communication</p> <p>2.2 Different modes of communication</p> <p>2.3 Medium of communication in the workplace</p> <p>2.4 Organizational/ Workplace policies</p> <p>2.5 Communication procedures and systems</p> <p>2.6 Lines of communication</p> <p>2.7 Technology relevant to the enterprise and the individual's work responsibilities</p> <p>2.8 Effective questioning techniques (clarifying and probing)</p> <p>2.9 Workplace etiquette</p>	<p>2.1 Following simple spoken instructions</p> <p>2.2 Performing routine workplace duties following simple written notices</p> <p>2.3 Participating in workplace meetings and discussions</p> <p>2.4 Completing work-related documents</p> <p>2.5 Estimating, calculating and recording routine workplace measures</p> <p>2.6 Relating/ Responding to people of various levels in the workplace</p> <p>2.7 Gathering and providing information in response to workplace requirements</p> <p>2.8 Basic questioning/querying</p> <p>2.9 Skills in reading for information</p> <p>2.10 Skills in locating</p>

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

RANGE OF VARIABLES

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

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1. Prepared written communication following standard format of the organization 1.2. Accessed information using workplace communication equipment/systems 1.3. Made use of relevant terms as an aid to transfer information effectively 1.4. Conveyed information effectively adopting formal or informal communication
2. Resource Implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1. Fax machine 2.2. Telephone 2.3. Notebook 2.4. Writing materials 2.5. Computer with Internet connection
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1. Demonstration with oral questioning 3.2. Interview 3.3. Written test 3.4. Third-party report
4. Context for Assessment	<ul style="list-style-type: none"> 4.1. Competency may be assessed individually in the actual workplace or through an accredited institution

UNIT OF COMPETENCY : **WORK IN A TEAM ENVIRONMENT**

UNIT CODE : **400311211**

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

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

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Work as a team member	<p>3.1 Effective and appropriate forms of communications are used and interactions undertaken with team members based on company practices.</p> <p>3.2 Effective and appropriate contributions made to complement team activities and objectives, based on workplace context</p> <p>3.3 Protocols in reporting are observed based on standard company practices.</p> <p>3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives</p>	<p>3.1 Communication Process</p> <p>3.2 Workplace communication protocol</p> <p>3.3 Team planning and decision making</p> <p>3.4 Team thinking</p> <p>3.5 Team roles</p> <p>3.6 Process of team development</p> <p>3.7 Workplace context</p>	<p>3.1 Communicating appropriately, consistent with the culture of the workplace</p> <p>3.2 Interacting effectively with others</p> <p>3.3 Deciding as an individual and as a group using group think strategies and techniques</p> <p>3.4 Contributing to Resolution of issues and concerns -</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	May include but not limited to: <ol style="list-style-type: none"> 1.1. Work activities in a team environment with enterprise or specific sector 1.2. Limited discretion, initiative and judgement maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	May include but not limited to: <ol style="list-style-type: none"> 2.1. Standard operating and/or other workplace procedures 2.2. Job procedures 2.3. Machine/equipment manufacturer's specifications and instructions 2.4. Organizational or external personnel 2.5. Client/supplier instructions 2.6. Quality standards 2.7. OHS and environmental standards
3. Workplace context	May include but not limited to: <ol style="list-style-type: none"> 3.1. Work procedures and practices 3.2. Conditions of work environments 3.3. Legislation and industrial agreements 3.4. Standard work practice including the storage, safe handling and disposal of chemicals 3.5. Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Worked in a team to complete workplace activity 1.2 Worked effectively with others 1.3 Conveyed information in written or oral form 1.4 Selected and used appropriate workplace language 1.5 Followed designated work plan for the job
2. Resource Implications	<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 tasks
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Role play involving the participation of individual member to the attainment of organizational goal 3.2 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork 3.3 Socio-drama and socio-metric methods 3.4 Sensitivity techniques 3.5 Written Test
4. Context for Assessment	<ul style="list-style-type: none"> 4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY : SOLVE/ADDRESS GENERAL WORKPLACE PROBLEMS

UNIT CODE : 400311212

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

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

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Look for solutions to routine problems	2.1 Potential solutions to problem are identified 2.2 Recommendations about possible solutions are developed, documented , ranked and presented to appropriate person for decision	2.1 Current industry hardware and software products and services 2.2 Industry service and helpdesk practices, processes and procedures 2.3 Operating systems 2.4 Industry standard diagnostic tools 2.5 Malfunctions and resolutions. 2.6 Root cause analysis	2.1 Identifying current industry hardware and software products and services 2.2 Identifying services and helpdesk practices, processes and procedures. 2.3 Identifying operating system 2.4 Identifying current industry standard diagnostic tools 2.5 Describing common malfunctions and resolutions. 2.6 Determining the root cause of a routine malfunction
3. Recommend solutions to problems	3.1 Implementation of solutions are planned 3.2 Evaluation of implemented solutions are planned 3.3 Recommended solutions are documented and submit to appropriate person for confirmation	3.1 Standard procedures 3.2 Documentation produce	3.1 Producing documentation that recommends solutions to problems 3.2 Following established procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Problems/Procedural Problem	May include but not limited to: <ul style="list-style-type: none"> 1.1 Routine/non – routine processes and quality problems 1.2 Equipment selection, availability and failure 1.3 Teamwork and work allocation problem 1.4 Safety and emergency situations and incidents 1.5 Work-related problems outside of own work area
2. Appropriate person	May include but not limited to: <ul style="list-style-type: none"> 2.1 Supervisor or manager 2.2 Peers/work colleagues 2.3 Other members of the organization
3. Document	May include but not limited to: <ul style="list-style-type: none"> 3.1 Electronic mail 3.2 Briefing notes 3.3 Written report 3.4 Evaluation report
4. Plan	May include but not limited to: <ul style="list-style-type: none"> 4.1 Priority requirements 4.2 Co-ordination and feedback requirements 4.3 Safety requirements 4.4 Risk assessment 4.5 Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Determined the root cause of a routine problem 1.2 Identified solutions to procedural problems. 1.3 Produced documentation that recommends solutions to problems. 1.4 Followed established procedures. 1.5 Referred unresolved problems to support persons.
2. Resource Implications	2.1. Assessment will require access to a workplace over an extended period, or a suitable method of gathering evidence of operating ability over a range of situations.
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Case Formulation 3.2 Life Narrative Inquiry 3.3 Standardized test <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	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY : DEVELOP CAREER AND LIFE DECISIONS

UNIT CODE : 400311213

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

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

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Develop reflective practice	<p>2.1 Personal strengths and achievements, based on self-assessment strategies and teacher feedback are contemplated</p> <p>2.2 Progress when seeking and responding to feedback from teachers to assist them in consolidating strengths, addressing weaknesses and fulfilling their potential are monitored</p> <p>2.3 Outcomes of personal and academic challenges by reflecting on previous problem solving and decision making strategies and feedback from peers and teachers are predicted</p>	<p>2.1 Basic SWOT analysis</p> <p>2.2 Strategies to improve one's attitude in the workplace</p> <p>2.3 Gibbs' Reflective Cycle/Model (Description, Feelings, Evaluation, Analysis, Conclusion, and Action plan)</p>	<p>2.1 Using the basic SWOT analysis as self-assessment strategy</p> <p>2.2 Developing reflective practice through realization of limitations, likes/dislikes; through showing of self-confidence</p> <p>2.3 Demonstrating self-acceptance and being able to accept challenges</p>
3. Boost self-confidence and develop self-regulation	<p>3.1 Efforts for continuous self-improvement are demonstrated</p> <p>3.2 Counter-productive tendencies at work are eliminated</p> <p>3.3 Positive outlook in life are maintained.</p>	<p>3.1 Four components of self-regulation based on Self-Regulation Theory (SRT)</p> <p>3.2 Personality development concepts</p> <p>3.3 Self-help concepts (e. g., 7 Habits by Stephen Covey, transactional analysis, psycho-spiritual concepts)</p>	<p>3.1 Performing effective communication skills – reading, writing, conversing skills</p> <p>3.2 Showing affective skills – flexibility, adaptability, etc.</p> <p>3.3 Self-assessment for determining one's strengths and weaknesses</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Self-management strategies	<p>May include but not limited to:</p> <p>1.1 Seeking assistance in the form of job coaching or mentoring</p> <p>1.2 Continuing dialogue to tackle workplace grievances</p> <p>1.3 Collective negotiation/bargaining for better working conditions</p> <p>1.4 Share your goals to improve with a trusted co-worker or supervisor</p> <p>1.5 Make a negativity log of every instance when you catch yourself complaining to others</p> <p>1.6 Make lists and schedules for necessary activities</p>
2. Unpleasant situation	<p>May include but not limited to:</p> <p>2.1 Job burn-out</p> <p>2.2 Drug dependence</p> <p>2.3 Sulking</p>

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Express emotions appropriately</p> <p>1.2 Work independently and show initiative</p> <p>1.3 Consistently demonstrate self-confidence and self-discipline</p>
2. Resource Implications	<p>The following resources should be provided:</p> <p>2.1. Access to workplace and resource s</p> <p>2.2. Case studies</p>
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <p>3.1. Demonstration or simulation with oral questioning</p> <p>3.2. Case problems involving work improvement and sustainability issues</p> <p>3.3. Third-party report</p>
4. Context for Assessment	<p>4.1. Competency assessment may occur in workplace or any appropriately simulated environment</p>

UNIT OF COMPETENCY	:	CONTRIBUTE TO WORKPLACE INNOVATION
UNIT CODE	:	400311214
UNIT DESCRIPTOR	:	This unit covers the knowledge, skills and Attitudes required to make a pro-active and positive contribution to workplace innovation.

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

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

RANGE OF VARIABLES

VARIABLES	RANGE
1. Opportunities for improvement	May include: <ul style="list-style-type: none"> 1.1 Systems. 1.2 Processes. 1.3 Procedures. 1.4 Protocols. 1.5 Codes. 1.6 Practices.
2. Information	May include: <ul style="list-style-type: none"> 2.1 Workplace communication problems. 2.2 Performance evaluation results. 2.3 Team dynamics issues and concerns. 2.4 Challenges on return of investment 2.5 New tools, processes and procedures. 2.6 New people in the organization.
3. People who could provide input	May include: <ul style="list-style-type: none"> 3.1 Leaders. 3.2 Managers. 3.3 Specialists. 3.4 Associates. 3.5 Researchers. 3.6 Supervisors. 3.7 Staff. 3.8 Consultants (external) 3.9 People outside the organization in the same field or similar expertise/industry. 3.10 Clients

4. Critical inquiry method	<p>May include:</p> <ul style="list-style-type: none"> 4.1 Preparation. 4.2 Discussion. 4.3 Clarification of goals. 4.4 Negotiate towards a Win-Win outcome. 4.5 Agreement. 4.6 Implementation of a course of action. 4.7 Effective verbal communication. See our pages: Verbal Communication and Effective Speaking. 4.8 Listening. 4.9 Reducing misunderstandings is a key part of effective negotiation. 4.10 Rapport Building. 4.11 Problem Solving. 4.12 Decision Making. 4.13 Assertiveness. 4.14 Dealing with Difficult Situations.
5. Reporting skills	<p>May include:</p> <ul style="list-style-type: none"> 5.1 Data management. 5.2 Coding. 5.3 Data analysis and interpretation. 5.4 Coherent writing. 5.5 Speaking.

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Identified opportunities to do things better. 1.2 Discussed and developed ideas with others on how to contribute to workplace innovation. 1.3 Integrated ideas for change in the workplace. 1.4 Analyzed and reported rooms for innovation and learning in the workplace.
2. Resource Implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Pens, papers and writing implements. 2.2 Cartolina. 2.3 Manila papers.
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Psychological and behavioral Interviews. 3.2 Performance Evaluation. 3.3 Life Narrative Inquiry. 3.4 Review of portfolios of evidence and third-party workplace reports of on-the-job performance. 3.5 Sensitivity analysis. 3.6 Organizational analysis. 3.7 Standardized assessment of character strengths and virtues applied.
4. Context for Assessment	<ul style="list-style-type: none"> 4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY : PRESENT RELEVANT INFORMATION**UNIT CODE : 400311215****UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to present data/information appropriately.**

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Gather data/information	1.1 Evidence, facts and information are collected 1.2 Evaluation, terms of reference and conditions are reviewed to determine whether data/information falls within project scope	1.1 Organisational protocols 1.2 Confidentiality 1.3 Accuracy 1.4 Business mathematics and statistics 1.5 Data analysis techniques/procedures 1.6 Reporting requirements to a range of audiences 1.7 Legislation, policy and procedures relating to the conduct of evaluations 1.8 Organisational values, ethics and codes of conduct	1.1 Describing organisational protocols relating to client liaison 1.2 Protecting confidentiality 1.3 Describing accuracy 1.4 Computing business mathematics and statistics 1.5 Describing data analysis techniques/procedures 1.6 Reporting requirements to a range of audiences 1.7 Stating legislation, policy and procedures relating to the conduct of evaluations 1.8 Stating organisational values, ethics and codes of conduct

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Assess gathered data/ information	2.1 Validity of data/ information is assessed 2.2 Analysis techniques are applied to assess data/ information. 2.3 Trends and anomalies are identified 2.4 Data analysis techniques and procedures are documented 2.5 Recommendations are made on areas of possible improvement.	2.1 Business mathematics and statistics 2.2 Data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Legislation, policy and procedures relating to the conduct of evaluations 2.5 Organisational values, ethics and codes of conduct	2.1 Computing business mathematics and statistics 2.2 Describing data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Stating legislation, policy and procedures relating to the conduct of evaluations 2.5 Stating organisational values, ethics and codes of conduct

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Record and present information	3.1 Studied data/information are recorded. 3.2 Recommendations are analysed for action to ensure they are compatible with the project's scope and terms of reference. 3.3 Interim and final reports are analysed and outcomes are compared to the criteria established at the outset. 3.4 Findings are presented to stakeholders.	3.1 Data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Legislation, policy and procedures relating to the conduct of evaluations 3.4 Organisational values, ethics and codes of conduct	3.1 Describing data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Stating legislation, policy and procedures relating to the conduct of evaluations 3.4 Stating organisational values, ethics and codes of conduct practices

RANGE OF VARIABLES

VARIABLES	RANGE
1. Data analysis techniques	May include but not limited to: <ul style="list-style-type: none"> 1.1. Domain analysis 1.2. Content analysis 1.3. Comparison technique

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Determine data / information 1.2 Studied and applied gathered data/information 1.3 Recorded and studied studied data/information <p>These aspects may be best assessed using a range of scenarios what ifs as a stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.</p>
2. Resource Implications	<p>Specific resources for assessment</p> <ul style="list-style-type: none"> 2.1. Evidence of competent performance should be obtained by observing an individual in an information management role within the workplace or operational or simulated environment.
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1. Written Test 3.2. Interview 3.3. Portfolio <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	<ul style="list-style-type: none"> 4.1. In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

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

UNIT CODE : 400311216

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

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify OSH compliance requirements	1.1 Relevant OSH requirements, regulations, policies and procedures are identified in accordance with workplace policies and procedures 1.2 OSH activity non-conformities are conveyed to appropriate personnel 1.3 OSH preventive and control requirements are identified in accordance with OSH work policies and procedures	1.1. OSH preventive and control requirements 1.2. Hierarchy of Controls 1.3. Hazard Prevention and Control 1.4. General OSH principles 1.5. Work standards and procedures 1.6. Safe handling procedures of tools, equipment and materials 1.7. Standard emergency plan and procedures in the workplace	1.1. Communication skills 1.2. Interpersonal skills 1.3. Critical thinking skills 1.4. Observation skills

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Prepare OSH requirements for compliance	2.1 OSH work activity material, tools and equipment requirements are identified in accordance with workplace policies and procedures 2.2. Required OSH materials, tools and equipment are acquired in accordance with workplace policies and procedures 2.3. Required OSH materials, tools and equipment are arranged/ placed in accordance with OSH work standards	2.1. Resources necessary to execute hierarchy of controls 2.2. General OSH principles 2.3. Work standards and procedures 2.4. Safe handling procedures of tools, equipment and materials 2.5. Different OSH control measures	2.1. Communication skills 2.2. Estimation skills 2.3. Interpersonal skills 2.4. Critical thinking skills 2.5. Observation skills 2.6. Material, tool and equipment identification skills
3. Perform tasks in accordance with relevant OSH policies and procedures	3.1 Relevant OSH work procedures are identified in accordance with workplace policies and procedures 3.2 Work Activities are executed in accordance with OSH work standards 3.3 Non-compliance work activities are reported to <i>appropriate personnel</i>	3.1. OSH work standards 3.2. Industry related work activities 3.3. General OSH principles 3.4. OSH Violations Non-compliance work activities	3.1 Communication skills 3.3 Interpersonal skills 3.4 Troubleshooting skills 3.5 Critical thinking skills 3.6 Observation skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. OSH Requirements, Regulations, Policies and Procedures	May include: <ul style="list-style-type: none"> 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Permit to Operate 1.6 Philippine Occupational Safety and Health Standards 1.7 Department Order No. 13 (Construction Safety and Health) 1.8 ECC regulations
2. Appropriate Personnel	May include: <ul style="list-style-type: none"> 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself
3. OSH Preventive and Control Requirements	May include: <ul style="list-style-type: none"> 3.1 Resources needed for removing hazard effectively 3.2 Resources needed for substitution or replacement 3.3 Resources needed to establishing engineering controls 3.4 Resources needed for enforcing administrative controls 3.5 Personal Protective equipment
4. Non OSH-Compliance Work Activities	May include non-compliance or observance of the following safety measures: <ul style="list-style-type: none"> 4.1 Violations that may lead to serious physical harm or death 4.2 Fall Protection 4.3 Hazard Communication 4.4 Respiratory Protection 4.5 Power Industrial Trucks 4.6 Lockout/Tag-out 4.7 Working at heights (use of ladder, scaffolding) 4.8 Electrical Wiring Methods 4.9 Machine Guarding 4.10 Electrical General Requirements 4.11 Asbestos work requirements 4.12 Excavations work requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ol style="list-style-type: none"> 1.1. Convey OSH work non-conformities to appropriate personnel 1.2. Identify OSH preventive and control requirements in accordance with OSH work policies and procedures 1.3. Identify OSH work activity material, tools and equipment requirements in accordance with workplace policies and procedures 1.4. Arrange/Place required OSH materials, tools and equipment in accordance with OSH work standards 1.5. Execute work activities in accordance with OSH work standards 1.6. Report OSH activity non-compliance work activities to appropriate personnel
2. Resource Implications	<p>The following resources should be provided:</p> <ol style="list-style-type: none"> 2.1 Facilities, materials tools and equipment necessary for the activity
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ol style="list-style-type: none"> 3.1 Observation/Demonstration with oral questioning 3.2 Third party report
4. Context for Assessment	<ol style="list-style-type: none"> 4.1 Competency may be assessed in the work place or in a simulated work place setting

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

UNIT CODE : 40031217

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

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

	<i>Italicized terms</i> are elaborated in the Range of Variables		
3. Convey inefficient and ineffective environmental practices	3.1 Efficiency and effectiveness of resource utilization are reported to <i>appropriate personnel</i> 3.2 Concerns related resource utilization are discussed with appropriate personnel 3.3 Feedback on information/ concerns raised are clarified with appropriate personnel	3.1 Appropriate Personnel to address the environmental hazards 3.2 Environmental corrective actions	3.1 Written and Oral Communication Skills 3.2 Critical thinking 3.3 Problem Solving 3.4 Observation Skills 3.5 Practice Environmental Awareness

RANGE OF VARIABLES

VARIABLE	RANGE
1. Environmental Work Procedures	May include: <ul style="list-style-type: none"> 1.1 Utilization of Energy, Water, Fuel Procedures 1.2 Waster Segregation Procedures 1.3 Waste Disposal and Reuse Procedures 1.4 Waste Collection Procedures 1.5 Usage of Hazardous Materials Procedures 1.6 Chemical Application Procedures 1.7 Labeling Procedures
2. Appropriate Personnel	May include: <ul style="list-style-type: none"> 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1. Measured required resource utilization in the workplace using appropriate techniques 1.2. Recorded data in accordance with workplace protocol 1.3. Identified causes of inefficiency and/or ineffectiveness through deductive reasoning 1.4. Validate the identified causes of inefficiency and/or ineffectiveness thru established environmental procedures 1.5. Report efficiency and effectiveness of resource utilization to appropriate personnel 1.6. Clarify feedback on information/concerns raised with appropriate personnel
2. Resource Implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Workplace 2.2 Tools, materials and equipment relevant to the tasks 2.3 PPE 2.4 Manuals and references
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Demonstration 3.2 Oral questioning 3.3 Written examination
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 : PRACTICE ENTREPRENEURIAL SKILLS IN THE WORKPLACE

UNIT CODE : 400311218

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

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Apply entrepreneurial workplace best practices	1.1 Good practices relating to workplace operations are observed and selected following workplace policy. 1.2 Quality procedures and practices are complied with according to workplace requirements. 1.3 Cost-conscious habits in resource utilization are applied based on industry standards.	1.1 Workplace best practices, policies and criteria 1.2 Resource utilization 1.3 Ways in fostering entrepreneurial attitudes: 1.3.1 Patience 1.3.2 Honesty 1.3.3 Quality-consciousness 1.3.4 Safety-consciousness 1.3.5 Resourcefulness	1.1 Communication skills 1.2 Complying with quality procedures
2. Communicate entrepreneurial workplace best practices	2.1 Observed good practices relating to workplace operations are communicated to appropriate person . 2.2 Observed quality procedures and practices are communicated to appropriate person 2.3 Cost-conscious habits in resource utilization are communicated based on industry standards.	2.1 Workplace best practices, policies and criteria 2.2 Resource utilization 2.3 Ways in fostering entrepreneurial attitudes: 2.3.1 Patience 2.3.2 Honesty 2.3.3 Quality-consciousness 2.3.4 Safety-consciousness 2.3.5 Resourcefulness	2.1 Communication skills 2.2 Complying with quality procedures 2.3 Following workplace communication protocol

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Implement cost-effective operations	<p>3.1 Preservation and optimization of workplace resources is implemented in accordance with enterprise policy</p> <p>3.2 Judicious use of workplace tools, equipment and materials are observed according to manual and work requirements.</p> <p>3.3 Constructive contributions to office operations are made according to enterprise requirements.</p> <p>3.4 Ability to work within one's allotted time and finances is sustained.</p>	<p>3.1 Optimization of workplace resources</p> <p>3.2 5S procedures and concepts</p> <p>3.3 Criteria for cost-effectiveness</p> <p>3.4 Workplace productivity</p> <p>3.5 Impact of entrepreneurial mindset to workplace productivity</p> <p>3.6 Ways in fostering entrepreneurial attitudes:</p> <p>4. Quality-consciousness</p> <p>5. Safety-consciousness</p>	<p>3.1 Implementing preservation and optimizing workplace resources</p> <p>3.2 Observing judicious use of workplace tools, equipment and materials</p> <p>3.3 Making constructive contributions to office operations</p> <p>3.4 Sustaining ability to work within allotted time and finances</p>

RANGE OF VARIABLES

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

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Demonstrated ability to identify and sustain cost-effective activities in the workplace 1.2 Demonstrated ability to practice entrepreneurial knowledge, skills and attitudes in the workplace.
2. Resource Implications	The following resources should be provided: 2.1 Simulated or actual workplace 2.2 Tools, materials and supplies needed to demonstrate the required tasks 2.3 References and manuals 2.3.1 Enterprise procedures manuals 2.3.2 Company quality policy
3. Methods of Assessment	Competency in this unit should be assessed through: 3.1 Interview 3.2 Third-party report
4. Context of Assessment	4.1 Competency may be assessed in workplace or in a simulated workplace setting 4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group

COMMON COMPETENCIES

UNIT OF COMPETENCY : APPLY SAFETY MEASURES IN FARM OPERATIONS

UNIT CODE : AFF 321201

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	2.1 Tools and materials are used according to	2.1 Uses and functions of tools	1.3 Using tools and materials

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
safety measures	specifications and procedures 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 safework requirement 2.5 Hazards in the workplace are identified and reported in line with farm guidelines	2.2 Outfits and how to wear it. 2.3 Expiration/shelf life of materials 2.4 Proper disposal of expired materials 2.5 Environmental rules and regulations 2.6 Emergency procedures 2.7 Hazards identification and reporting 2.8 Communication skills 2.9 OSHS	in the workplace 1.4 Wearing of outfits 1.5 Observing expiration/shelf life of materials 1.6 Disposing of expired materials 1.7 Following emergency procedures 1.8 Identifying and reporting of hazards in workplace area.
2 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 manufacturer's recommendation and farm requirements. 3.3 Waste materials are disposed according to manufacturers, government and farm requirements.	2.1 Procedures of cleaning used tools and outfits 2.2 Label and storage unused materials 2.3 Disposal of wastes materials 2.4 Manufacturers' recommendation on keeping materials 2.5 2.3-2.7 Environmental rules and regulations	3 Cleaning used tools and outfit 4 Labeling and storing unused materials 5 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	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 <i>farm equipment</i> 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 manufacturers manual 2.4 Faults in farm equipment are identified and reported in line with farm procedures	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 2.7 Equipment faults identification and reporting	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 2.6 Operating farm equipment 2.7 Following safety procedures.

LEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.5 Farm equipment is used according to its function 2.6 Safety procedures are followed.	2.8 Operation of equipment 2.9 Codes and Regulations on environmental protection 2.10 Safety and keeping of equipment every after use 2.11 Safety measures	
3 Perform preventive maintenance	3.1 Tools and equipment are cleaned immediately after use in line with farm procedures 3.2 Routine check-up and maintenance are performed 3.3 Tools and equipment are stored in designated areas in line with farm procedures	3.1 Cleaning procedures of tools and equipment 3.2 Maintenance procedures of farm equipment 3.3 Storage of tools and equipment 3.4 Designated storage areas	3.1 Cleaning tools and equipment 3.2 Performing routinely check-up of tools and equipment 3.3 Maintaining farm equipment 3.4 Storing tools and equipment

RANGE OF VARIABLES

VARIABLE	RANGE
1. Farm equipment	1.1 Engine 1.2 Pumps 1.3 Generators 1.4 Sprayers
2. Farm tools	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	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	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 : AGR 321203****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/labor needs 1.2 Calculation of quantities of materials and resources required 1.3 Calculation of time for job completion 1.4 Preparation of estimate report 1.5 Basic mathematical operations 1.6 Percentage and ratios 1.7 Unit Conversion	1.1 Identifying job requirements/labor 1.2 Estimating quantities of materials and resources required 1.3 Estimating time for job completion 1.4 Performing basic calculation 1.5 Compute percentage 1.6 Convert English to metric systems of measurement 1.7 Preparing estimate report
2. Perform basic workplace calculation	2.1 <i>System and units of measurement</i> to be followed are ascertained 2.2 Calculation needed to complete work tasks are performed using the <i>four basic mathematical operation</i> 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 take-off 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	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 COMPETENCY**UNIT OF COMPETENCY : PERFORM BASIC BAMBOO PROCESSING****UNIT CODE : AFF752301**

UNIT DESCRIPTOR : This unit covers the knowledge and skills required to perform work activities involve in pre-production activities, produce semi-processed bamboo materials, carry out treatment and preservation and complete basic bamboo processing activities.

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized</i> terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform pre-production activities	1.1 <i>Basic bamboo processes</i> are identified and confirmed following OSHS Rule 1080, Rule 1070, Rule 1150 1.2 Bamboo are selected according to work specifications and OSHS Rule 1080 and Rule 1070 1.3 <i>Tools, machines and equipment</i> are prepared according to work requirements and OSHS Rule 1080, Rule 1070, Rule 1150 and Rule 1200	1.1 Basic bamboo processes 1.2 Types of tools, materials and equipment 1.3 Defective tools and equipment 1.4 Uses and functions of tools, materials and equipment 1.5 Calibration procedures 1.6 Bamboo utilization map 1.7 Selection and Sorting procedure 1.8 Defective and unaged poles 1.9 Mensuration and estimation 1.10 Basic fundamental mathematics operation 1.11 Following manufacturer's manual 1.12 OSHS - Rule 1070 – Occupational Health and Environmental Control	1.2 Preparing tools, materials and equipment 1.3 Selecting and sorting culm and poles 1.4 Practicing safety measures following OSHS

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized</i> terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		<ul style="list-style-type: none"> - Rule 1080 - Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage - Rule 1200- Machine Guarding 	
2. Produce semi-processed bamboo materials	<p>2.1 Bamboo is cut according to specified length and OSHS Rule 1080, Rule 1070 and Rule 1150</p> <p>2.2 Tools are used according to the required basic bamboo process and OSHS Rule 1080 and Rule 1150</p> <p>2.3 Equipment is operated according to the required bamboo process and OSHS Rule 1080, Rule 1070 and Rule 1200.</p> <p>2.4 <i>Semi-processed bamboo materials</i> are manufactured based on job specifications.</p> <p>2.5 Weaving technique is applied according to desired <i>weaving pattern</i> and specifications and OSHS Rule</p>	<p>2.1 Semi-processed bamboo materials</p> <p>2.2 Basic Bamboo Weaving Patterns</p> <p>2.3 Splitting procedures</p> <p>2.4 Ripping procedures</p> <p>2.5 Slivering and slitting procedures</p> <p>2.6 Bamboo crushing procedures</p> <p>2.7 Weaving techniques and procedures</p> <p>2.8 Mensuration and estimation</p> <p>2.9 Basic fundamental mathematics operation</p> <p>2.10 Following manufacturer's manual</p> <p>2.11 Following job specifications</p> <p>2.12 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 - Personal Protective 	<p>2.1 Using different tools and machines for basic bamboo processing</p> <p>2.2 Using of measuring devices.</p> <p>2.3 Practicing safety measures following OSHS</p> <p>2.4 Operating equipment</p> <p>2.5 Using different weaving tools and equipment</p>

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized</i> terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	1070, Rule 1080 and Rule 1150.	Equipment and Devices - Rule 1150 – Materials Handling and Storage - Rule 1200- Machine Guarding	
3. Complete basic bamboo processing activities	<p>3.1 Dried bamboo slats are stocked following established industry practices</p> <p>3.2 Delivery of dried bamboo slats is coordinated following industry procedures</p> <p>3.3 Reusable materials are collected and stored following workplace procedures and OSHS Rule 1070, Rule 1080 and Rule 1090</p> <p>3.4 Waste and scrap are removed following industry guidelines</p> <p>3.5 Tools and Equipment are maintained and stored following manufacturer's manual and industry guidelines</p> <p>3.6 Work area is restored following OSHS Rule 1070, Rule 1080 and Rule 1150</p> <p>3.7 Unserviceable tools and equipment are tagged and</p>	<p>3.1 Waste segregation procedures</p> <p>3.2 5S of Good Housekeeping</p> <p>3.3 Following manufacturer's manual</p> <p>3.4 Following job specifications</p> <p>3.5 record keeping</p> <p>3.6 OSHS</p> <p>3.7 Environmental Issues</p> <p>3.8 waste management</p> <p>3.9 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 - Personal Protective Equipment and Devices - Rule 1090 – Hazardous Materials - Rule 1150 – Materials Handling and Storage 	<p>3.1 Collecting and storing reusable material</p> <p>3.2 Removing waste and scrap</p> <p>3.3 Maintaining and storing tools and equipment</p> <p>3.4 Restoring work area</p> <p>3.5 Tagging and reporting unserviceable tools and equipment</p> <p>3.6 Accomplishing necessary documentation</p> <p>3.7 Practicing 5S of Good Housekeeping</p> <p>3.8 Practicing safety measures following OSHS</p> <p>3.9 Identifying Faults in equipment accordance with OHS procedures</p> <p>3.10 Practicing waste management</p>

ELEMENTS	PERFORMANCE CRITERIA <i>Italicized</i> terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>reported to immediate supervisor</p> <p>3.8 Necessary documentation is accomplished in accordance with enterprise standards</p>		

RANGE OF VARIABLES

VARIABLE	RANGE
1. Basic bamboo processes	<p>Basic bamboo processes may include:</p> <ul style="list-style-type: none"> 1.1 Cutting 1.2 Ripping 1.3 Splitting 1.4 Slicing and slitting 1.5 Shaving 1.6 Waning 1.7 Crushing 1.8 Mat weaving
2. Tools, machines and equipment	<p>Tools, machines and equipment may include</p> <p>2.1 Tools</p> <ul style="list-style-type: none"> 2.1.1 Bolo 2.1.2 Shaver 2.1.3 Sizer 2.1.4 Knife 2.1.5 Manual Splitter 2.1.6 Dowelling Gadget 2.1.7 Scissors 2.1.8 Measuring tools <ul style="list-style-type: none"> -diameter gauge -measuring tape -caliper 2.1.9 Marking tools <ul style="list-style-type: none"> -pencil -chalk <p>2.2 Machines and Equipment</p> <ul style="list-style-type: none"> 2.2.1 Pole Cutter 2.2.2 Cut-off Saw 2.2.3 Twin Rip Saw 2.2.4 Splitting Machine 2.2.5 Slicing machine <p>2.3. Treatment and preservation tools and equipment</p> <ul style="list-style-type: none"> 2.3.1 Treatment vat 2.3.2 Brush 2.3.3 Stirring rod

VARIABLE	RANGE
	2.3.4 Mixing bowl or can
3. Semi-processed bamboo materials	Semi-processed bamboo materials may include 3.1 Slats 3.2 Slivers 3.3 Crushed bamboo 3.4 Bamboo mats
4. Weaving Pattern	Weaving pattern may include 4.1 Sawali pattern 4.2 Cross Pattern 4.3 Diamond Pattern
5. Industry guidelines	Industry guidelines may include: 5.1 Ecological Solid Waste Management Act of 2000 5.2 OSHS - Rule 1070 - Rule 1080 - Rule 1150

EVIDENCE GUIDE

1. Critical Aspects	Assessment requires evidence that the candidate: 1.1 Performed pre-production activities 1.2 Produced semi-processed bamboo materials 1.3 Completed basic bamboo processing activities 1.4 Practiced safety 1.5 Used tools and equipment for basic bamboo processing 1.6 Performed weaving
2. Resource Implications	The following resources should be provided: 2.1 Bamboo processing work shop or simulated workplace 2.2 Tools, materials and equipment relevant to the task to be demonstrated 2.3 Manuals and references 2.4 PPEs
3. Assessment method	Competency in this unit may be assessed through: 3.1 Demonstration 3.2 Oral questioning 3.3 Written exam
4. Context of Assessment	Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.

UNIT OF COMPETENCY : **CARRY OUT TREATMENT OF SEMI-PROCESSED BAMBOO MATERIALS**

UNIT CODE : **AFF752302**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to perform work activities involve in performing pre-treatment activities, preparing preservatives solution, applying preservative solution, air drying and completing treatment and preservation activities.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform pre-treatment activities	1.1 <i>Semi-processed bamboo materials</i> are identified following workplace procedures 1.2 <i>Treatment method</i> is identified and confirmed with immediate supervisor. 1.3 <i>Tools, equipment and supplies</i> are prepared in accordance with the approved treatment method following workplace procedures and OSHS Rule 1070, Rule 1080 and Rule 1090 1.4 Needed amount of chemicals for preservative solutions are confirmed according to work requirements and treatment methods following OSHS Rule 1070, Rule 1080 and Rule 1090 1.5 Preservative solution is prepared	1.1 Types of treatment methods 1.2 Preparation of tools, equipment and supplies 1.3 Mixing Ratio 1.4 Preservative solution preparation procedures 1.5 Mensuration and Estimation 1.6 Fundamental Mathematics Operation 1.7 Following Manufacturer's Manual 1.8 Following job specifications 1.9 OSHS <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1090 – Hazardous Materials 	1.2 Preparing semi-processed bamboo materials 1.3 Identifying and confirming treatment method 1.4 Preparing tools, equipment and supplies 1.5 Practicing safety measures following OSHS 1.6 Preparing chemical 1.7 Measuring volumes and weight 1.8 Using measuring devices

	according to the approved treatment method following standard workplace procedure and OSHS Rule 1070, Rule 1080 and Rule 1090		
2. Conduct chemical treatment	<p>2.1 Semi-processed bamboo materials are prepared according to the approved treatment following OSHS Rule 1070, Rule 1080, Rule 1090 and Rule 1150</p> <p>2.2 Preservative solution is applied following standard operating procedures and OSHS Rule 1070, Rule 1080 and Rule 1090</p>	<p>2.1 Procedures and Techniques in applying preservatives</p> <p>2.2 Mensuration and Estimation</p> <p>2.3 Following manufacturer's manual</p> <p>2.4 Following job specifications</p> <p>2.5 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1090 – Hazardous Materials - Rule 1150 – Materials Handling and Storage 	<p>2.1 Preparing semi-processed bamboo materials</p> <p>2.2 Applying preservatives</p> <p>2.3 Using tools and equipment</p> <p>2.4 Practicing safety measures following OSHS</p>
3. Perform air drying	<p>3.1 Treated bamboo slats are knotted and transferred to drying area following OSHS Rule 1070, Rule 1080, Rule 1090 and Rule 1150</p> <p>3.2 Treated bamboo slats are piled according to workplace procedure and OSHS Rule 1070, Rule 1080 and Rule 1150</p>	<p>3.1 Proper handling of treated bamboo slats</p> <p>3.2 Binding and transfer of treated bamboo slats</p> <p>3.3 Air Drying and piling procedures</p> <p>3.4 Storage of dried treated semi-processed bamboo slats</p> <p>3.5 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational 	<p>3.1 Tying/knotting and transferring treated bamboo</p> <p>3.2 Piling of treated bamboo slats</p> <p>3.3 Air drying of semi-processed bamboo materials</p> <p>3.4 Practicing safety measures following OSHS</p>

	<p>3.3 Drying is conducted following established industry procedure and OSHS Rule 1080 and Rule 1150</p>	<p>Health and Environmental Control</p> <ul style="list-style-type: none"> - Rule 1080 – Personal Protective Equipment and Devices - Rule 1090 – Hazardous Materials - Rule 1150 – Materials Handling and Storage 	
<p>4. Complete treatment and preservation activities</p>	<p>4.1 Dried treated semi-processed bamboo slats are stored following drying procedures and OSHS Rule 1070, Rule 1080 and Rule 1150</p> <p>4.2 Reusable materials are collected and stored following workplace procedures and OSHS Rule 1080 and Rule 1150</p> <p>4.3 Waste and scrap are removed following environmental laws and OSHS Rule 1080 and Rule 1150</p> <p>4.4 Tools and equipment are maintained and stored following manufacturer's manual and OSHS Rule 1080 and Rule 1150</p> <p>4.5 Work area is restored following OSHS Rule 1070, Rule 1080 and Rule 1150</p> <p>4.6 Unserviceable tools and equipment are tagged and reported</p>	<p>4.1 Storage of dried treated semi-processed bamboo slats</p> <p>4.2 5S of Good Housekeeping</p> <p>4.3 Waste segregation procedures</p> <p>4.4 Following manufacturer's manual</p> <p>4.5 Following job specifications</p> <p>4.6 Record keeping</p> <p>4.7 RA 9003-Ecological Solid Waste Management Act of 2000</p> <p>4.8 RA 6969-Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990</p> <p>4.9 RA 9275 – Clean Water Act of 2004</p> <p>4.10 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices 	<p>4.1 Collecting and storing reusable materials</p> <p>4.2 Removing waste and scrap</p> <p>4.3 Maintaining and storing tools and equipment.</p> <p>4.4 Restoring work area</p> <p>4.5 Tagging and reporting unserviceable tools and equipment</p> <p>4.6 Accomplishing necessary documentation</p> <p>4.7 Practicing 5S</p> <p>4.8 Practicing safety measure</p> <p>4.9 Identifying faults in equipment in accordance with OSHS procedures</p> <p>4.10 Practicing waste management</p> <p>4.11 Applying safety practices following OSHS</p>

	to immediate supervisor 4.7 Necessary documentation is accomplished in accordance with enterprise standards	- Rule 1150 – Materials Handling and Storage	
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RANGE OF VARIABLES

VARIABLE	RANGE
1. Semi-processed bamboo materials	Semi-processed bamboo materials may include 1.1 Slats 1.2 Slivers 1.3 Crushed bamboo 1.4 Bamboo mats
2. Treatment Method	Treatment method may include 2.1 Brushing 2.2 Dipping 2.3 Cold bath process 2.4 Hot bath process
3. Tools, machine and equipment	Tools, machine and equipment may include: 3.1 Tools 3.1.1 Bolo 3.1.2 Mixing Bowl 3.1.3 Stirring rod 3.2 Equipment 3.2.1 Treatment Vat 3.2.2 Sprayer 3.2.3 Weighing scale 3.3 Supplies 3.3.1 Rags 3.3.2 Chemicals - Insecticide - Fungicide - Boric Acid - Borax - Caustic Soda 3.3.3 PPE's
4. Preservative Solution	Preservative solution may include water or a mixture of water and: 4.1 Insecticide 4.2 Fungicide 4.3 Boric Acid and Borax 4.4 Caustic Soda
5. Drying	Drying may include: 5.1 Air dry 5.2 Solar Mechanical dry 5.3 Sun Dry
6. Environmental Laws	Environmental laws may include: 6.1 RA 9003-Ecological Solid Waste Management Act of 2000 6.2 RA 6969-Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 6.3 RA 9275 – Clean Water Act of 2004

EVIDENCE GUIDE

1. Critical Aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Performed pre-treatment activities 1.2 Prepared preservative solution 1.3 Conducted chemical treatment 1.4 Performed air drying 1.5 Completed treatment and preservation activities 1.6 Practiced safety 1.7 Used tools and equipment for treatment and preservation
2. Resource Implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Simulated or actual treatment and preservation area 2.2 Materials, tools, equipment and machine relevant to the task to be demonstrated 2.3 PPEs 2.4 References and materials
3. Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Direct Observation 3.2 Demonstration 3.3 Oral questioning and 3.4 Written examination
4. Context of Assessment	<p>4.1. Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.</p>

UNIT OF COMPETENCY : **PERFORM KILN DRYING**

UNIT CODE : **AFF752303**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to perform work activities involve in performing pre-drying activities, loading kiln, drying kiln charge, unloading kiln charge and performing post drying activities.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform pre-drying activities	1.1 Semi-processed bamboo materials are prepared for drying according to enterprise procedures following OSHS Rule 1080 and Rule 1150 1.2 Drying process is planned based on semi-processed bamboo materials to be dried 1.3 Drying Chamber is cleaned following standard workplace procedures and OSHS Rule 1070, Rule 1080 and Rule1150 1.4 Kiln drying equipment and kiln dryer accessories are checked for serviceability following OSHS Rule 1070, Rule 1080, Rule 1150 and Rule 1210 1.5 Samples are selected based on established sampling procedures following OSHS Rule 1080	1.1 Drying process 1.2 Moisture content 1.3 Types and parts of Kiln Dryer 1.4 Types of drying chamber 1.5 Preparations of semi processed bamboo materials for drying 1.6 Cleaning procedures of drying chamber 1.7 Checking of kiln dryer for serviceability 1.8 Sampling procedures 1.9 Uses and functions of moisture meter 1.9.1 Calibration procedures 1.10 Methods in Moisture Content Determination 1.10.1Using weighing scales and oven 1.11 Uses and functions of tools, materials and equipment	1.1 Preparing semi-processed bamboo materials 1.2 Planning drying process 1.3 Cleaning drying chamber 1.4 Checking kiln equipment and kiln dryer accessories 1.5 Measuring initial moisture contents of sample 1.6 Practicing 5S 1.7 Determining moisture content 1.8 Using moisture meter 1.9 Selecting sample 1.10 Practicing safety measures following OSHS 1.11 Operating kiln drying machine

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	1.6 Initial moisture contents of samples are measured and recorded in accordance with standard operating procedures	1.12 Mensuration and estimation 1.13 Basic fundamental mathematics operation 1.14 Following manufacturer's manual 1.15 Following job specifications 1.16 Record keeping 1.17 Record readings of moisture meter 1.18 OSHS <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage - Rule 1210 – Electrical Safety 	
2. Load kiln	2.1 Semi-processed bamboo materials are piled according to standard operating procedures following OSHS Rule 1080 and Rule 1150 2.2 Baffles and blankets are positioned in accordance with standard operating procedures and OSHS Rule 1080 and Rule 1150 2.3 Samples and moisture probes are placed following standard	2.1 Piling system 2.2 Baffles and blankets 2.3 Piling procedures 2.4 Positioning procedures of baffles and blankets 2.5 Placing samples and moisture probes in Drying chamber 2.6 Following manufacturer's manual	2.1 Piling semi-processed bamboo materials 2.2 Positioning baffles and blankets 2.3 Placing samples and moisture probes inside drying chamber 2.4 Practicing safety measures following OSHS

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	operating procedure and OSHS Rule 1070 and Rule 1080	2.7 Following job specifications 2.8 Standard operating procedures for drying chamber 2.9 OSHS <ul style="list-style-type: none"> - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage 	
3. Dry kiln charge	3.1 Initial drying condition is set according to the state of materials to be dried following OSHS Rule 1070 and Rule 1080 3.2 Kiln dryer is operated following industry guidelines 3.3 Moisture content is routinely measured and compared with anticipated levels in accordance with drying schedule following OSHS Rule 1070 and Rule 1080 3.4 Kiln control settings are routinely monitored to maintain required drying condition following OSHS Rule 1080 3.5 Kiln control settings are adjusted based on the result of monitoring	3.1 Drying condition <ul style="list-style-type: none"> 3.1.1 Humidity 3.1.2 Temperature 3.1.3 Air Flow 3.1.4 Moisture content 3.2 Drying status and Drying schedule chart 3.3 Checking and monitoring moisture content level and temperature 3.4 Operation of kiln dryer 3.5 Computation of Moisture Content 3.6 Following manufacturer's manual 3.7 Following job specifications 3.8 Record of moisture content and temperature readings 3.9 Accomplishing monitoring chart 3.10 RA 8749 Clean Air Act of 1999	3.1 Setting initial drying condition 3.2 Measuring and comparing moisture content 3.3 Checking kiln control settings 3.4 Adjusting kiln control settings 3.5 Using of Kiln drying equipment 3.6 Using drying schedule 3.7 Gathering and recording data 3.8 Practicing safety measures following OSHS and RA 8749 3.9 Using and reading of thermometer

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		3.11 Air Emission Standards 3.12 OSHS <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1210 – Electrical Safety 	
4. Unload kiln charge	4.1 Samples are checked with reference to drying end point following OSHS Rule 1070 and Rule 1080 4.2 Drying chamber is checked for safe entry following OSHS Rule 1070 and Rule 1080 4.3 Bamboo materials are counter checked for required moisture content following OSHS Rule 1070 and Rule 1080 4.4 Bamboo materials are unloaded from the chamber following workplace procedures and OSHS Rule 1070, Rule 1080 and Rule 1150 4.5 Bamboo materials are piled and stored following standard workplace procedures and OSHS Rule 1080 and Rule 1150 4.6 Defective bamboo materials are segregated following	4.1 Drying schedule 4.2 Drying end point 4.3 defective bamboo materials 4.4 Checking procedures of samples and drying chambers 4.5 Counter checking methods 4.6 Unloading procedures 4.7 Piling and storage 4.8 Segregation procedure 4.9 Computation of Moisture Content 4.10 Basic mathematics fundamental operations 4.11 Following manufacturer's manual 4.12 Following job specifications 4.13 Record keeping 4.14 RA 9003- Ecological Solid Waste Management Act of 2000	4.1 Checking samples 4.2 Checking drying chamber for safe entry 4.3 Counter checking bamboo materials 4.4 Unloading bamboo materials 4.5 Piling and storing bamboo materials 4.6 Using of moisture meter 4.7 Segregating defective bamboo materials 4.8 Practice safety measures following OSHS and RA 9003 4.9 Basic mathematical skills

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	Ecological solid Waste Management Act of 2000 and OSHS Rule 1080 and Rule 1150	4.15 OSHS - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage	
5. Perform post drying activities	5.1 Kiln drying Equipment and accessories are cleaned and inspected following operation manual and OSHS Rule 1070, Rule 1080 and Rule 1150 5.2 Work area is restored in accordance with standard workplace procedures and OSHS Rule 1080 and Rule 1150 5.3 Work activities and outputs are recorded and reported to immediate supervisor	5.1 Proper tools and equipment to be used 5.2 Maintenance and storage procedure of tools and equipment 5.3 Record keeping and preparation of report 5.4 5S of good Housekeeping 5.5 Waste management 5.6 OSHS - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage	5.1 Cleaning and inspecting kiln drying equipment and accessories 5.2 Restoring work area 5.3 Recording and reporting work activities and outputs 5.4 Written and oral reporting 5.5 Practicing safety measures following OSHS

RANGE OF VARIABLES

VARIABLE	RANGE
1. Semi-processed bamboo materials	Semi-processed bamboo materials may include 1.1 Slats 1.2 Slivers 1.3 Crushed bamboo 1.4 Bamboo mats
2. Kiln dryer accessories	Kiln dryer accessories may include: 2.1 Baffles 2.2 Stickers 2.3 Rafters 2.4 Blowers 2.5 Ventilations 2.6 Temperature gauge (Wet bulb and dry bulb)
3. Drying conditions	Drying conditions may include: 3.1 Humidity 3.2 Air flow 3.3 Temperature 3.4 Moisture content
4. Kiln dryer	Kiln dryer includes: 4.1 Electric type 4.2 Furnace type 4.3 Solar type
5. Industry guidelines	Industry guidelines may include: 5.1 Manufacturer's manual 5.2 Air emission standards 5.3 OSHS Rule 1070, Rule 1080 and Rule 1210

EVIDENCE GUIDE

Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Performed pre-drying activities 1.2 Loaded kiln 1.3 Dried kiln charge 1.4 Unloaded kiln charge 1.5 Performed post-drying activities
Resource Implications	The following resources should be provided: 2.1 Simulated or actual kiln drying operation area 2.2 Materials, tools, equipment and machine relevant to the task to be demonstrated 2.3 PPEs 2.4 References and materials
Methods of Assessment	Competency in this unit may be assessed through: 3.1 Direct Observation 3.2 Demonstration 3.3 Oral questioning 3.4 Written examination
Context of Assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.

UNIT OF COMPETENCY : **PERFORM MILLING OPERATION**

UNIT CODE : **AFF752304**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to prepare for pre-milling operations, set-up machine for milling operation, perform milling and perform post milling activities

ELEMENT	PERFORMANCE CRITERIA Italicized terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Conduct pre-milling operations	1.1 <i>Bamboo materials</i> are prepared for <i>milling operation</i> following OSHS Rule 1080 and Rule 1150 1.2 <i>Tools, machines and equipment</i> are checked for serviceability following OSHS Rule 1080, Rule 1150 and Rule 1210 1.3 <i>Supplies</i> are prepared based on work requirement following OSHS Rule 1080 and Rule 1150	1.1 Basic Machine Operations 1.2 Milling operations 1.3 Supplies and Materials 1.4 Preparations of semi processed bamboo materials milling 1.5 Checking of tools, machines and equipment for serviceability 1.6 Calibration procedures 1.7 Mensuration and estimation 1.8 Basic fundamental mathematics operation 1.9 Following manufacturer's manual 1.10 Following job specifications 1.11 Record keeping 1.12 OSHS - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials	1.1 Preparing semi-processed bamboo materials 1.2 checking of tools, machines and equipment 1.3 Using measuring tools 1.4 Preparing supplies 1.5 Practicing safety measures following OSHS

		Handling and Storage - Rule 1210 – Electrical Safety	
2. Set up machine for milling operation	<p>2.1 Drawing plan is interpolated following established industry practices</p> <p>2.2 Blades are adjusted according to the required product specifications following OSHS Rule 1070 and Rule 1080</p> <p>2.3 Machine mechanisms are adjusted according to product specifications following OSHS Rule 1070 and Rule 1080</p> <p>2.4 Sample cut are made to finalize set-up following OSHS Rule 1080</p>	<p>2.1 Interpolation of drawing plans</p> <p>2.2 Types of Cutting Blades and Knives</p> <p>2.3 Adjusting blades</p> <p>2.4 Adjusting machine mechanisms</p> <p>2.5 Finalize set-up</p> <p>2.6 Mensuration and estimation</p> <p>2.7 Basic fundamental mathematics operation</p> <p>2.8 Following manufacturer's manual</p> <p>2.9 Following job specifications</p> <p>2.10 Environmental Issues</p> <p>2.11 OSHS - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices</p>	<p>2.1 Adjusting blades</p> <p>2.2 Adjusting machine mechanism</p> <p>2.3 Making sample cuts</p> <p>2.4 Using measuring tools</p> <p>2.5 Finalizing set-up</p> <p>2.6 Practicing safety measures following OSHS</p> <p>2.7 Interpolating drawing plans</p>
3. Perform milling	<p>3.1 Bamboo materials are cut according to job specifications following OSHS Rule 1080 and Rule 1150</p> <p>3.2 Bamboo materials are milled according to job specifications following OSHS Rule 1070 and Rule 1080</p>	<p>3.1 Planning procedures</p> <p>3.2 Ripping procedures</p> <p>3.3 Cutting operation</p> <p>3.4 Checking of dimensions</p> <p>3.5 Mensuration and estimation</p> <p>3.6 Basic fundamental mathematics operation</p>	<p>3.1 Planning bamboo materials</p> <p>3.2 Cutting bamboo materials</p> <p>3.3 Checking dimensions</p> <p>3.4 Practicing safety measures</p>

	<p>3.3 Milling machines are operated according to operation manual following OSHS Rule 1070, Rule 1080 and Rule 1210</p> <p>3.4 Dimensions are checked for conformity of job specifications following OSHS Rule 1080</p>	<p>3.7 Following manufacturer's manual</p> <p>3.8 Following job specifications</p> <p>3.9 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage 	
<p>4. Perform post milling activities</p>	<p>4.1 Tools, are cleaned and inspected following operation manual and OSHS Rule 1080</p> <p>4.2 Preventive maintenance is conducted following manufacturer's manual and industry guidelines</p> <p>4.3 Work area is restored following workplace procedures and industry guidelines</p> <p>4.4 Work activities and outputs are recorded and reported to immediate supervisor</p>	<p>4.1 Proper tools and equipment to be used</p> <p>4.2 Maintenance and storage procedure of tools and equipment</p> <p>4.3 Preventive maintenance</p> <p>4.4 Minor trouble shooting and repair</p> <p>4.5 Record keeping and preparation of report</p> <p>4.6 Following manufacturer's manual</p> <p>4.7 5S of Good Housekeeping</p> <p>4.8 Waste management</p> <p>4.9 RA 9003- Ecological Solid Waste Management Act of 2000</p> <p>4.10 OSHS</p>	<p>4.1 Cleaning and inspecting tool, machines and equipment</p> <p>4.2 Restoring work area</p> <p>4.3 Recording and reporting work activities and outputs</p> <p>4.4 Written and oral reporting</p> <p>4.5 Practicing safety measures following OSHS and RA 9003</p> <p>4.6 Performing preventive maintenance</p> <p>4.7 Performing minor repairs and troubleshooting</p>

		<ul style="list-style-type: none">- Rule 1070 – Occupational Health and Environmental Control- Rule 1080 – Personal Protective Equipment and Devices- Rule 1150 – Materials Handling and Storage- Rule 1210 – Electrical Safety	
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RANGE OF VARIABLES

VARIABLE	RANGE
1. Bamboo materials	Bamboo materials may include kiln dried or sun-dried: <ul style="list-style-type: none"> 1.1 Semi-processed bamboo materials <ul style="list-style-type: none"> 1.1.1 Slats 1.1.2 Slivers 1.1.3 Crushed bamboo 1.1.4 Bamboo mats 1.2 Kiln dried bamboo materials <ul style="list-style-type: none"> 1.2.1 Slats 1.2.2 Slivers 1.2.3 Crushed bamboo 1.2.4 Bamboo mats 1.3 laminated bamboo materials <ul style="list-style-type: none"> 1.3.1 Layered slats 1.3.2 Bamboo panels 1.3.3 Bamboo planks 1.3.4 bamboo lumber/post
2. Milling operations	Milling operations may include: <ul style="list-style-type: none"> 2.1 Ripping 2.2 Cutting 2.4 Planning
3. Tools, machines and equipment	Tools, machines and equipment may include: <ul style="list-style-type: none"> 3.1 Tools <ul style="list-style-type: none"> 3.1.1 Measuring tools <ul style="list-style-type: none"> 3.1.1.1 Caliper 3.1.1.2 Measuring tape 3.1.1.3 Tri-square 3.1.2. Hammer 3.1.3 Adjustable wrench 3.1.4 Set of Allen wrench 3.1.5 Pliers 3.1.6 Screw driver <ul style="list-style-type: none"> 3.1.6.1 Philip screw driver 3.1.6.2 Flat screw driver 3.1.7 Grease gun 3.1.8 Oil dispenser 3.1.9 Cleaning tools <ul style="list-style-type: none"> 3.1.9.1 Broom 3.1.9.2 Dust pan 3.1.9.3 Garbage bin 3.1.9.4 Blowers 3.1.9.5 Vacuum cleaners 3.1.9.6 Paint brush 3.1.9.7 Sacks 3.1.10 Clamps <ul style="list-style-type: none"> 3.10.1 Push Stick 3.10.2 Flash lights 3.2 Machines and equipment <ul style="list-style-type: none"> 3.2.1 Table Saw 3.2.2 Jointer Planer

VARIABLE	RANGE
	34.2.3 Thickness Planer 34.2.4 4-side planer 3.2.5 Radial Arm Saw 3.2.6 Air compressor 3.2.7 Dust collector 3.2.8 Single spindle molder/shaper 3.2.9 Band saw 3.2.10 Wide belt sander 3.2.11 Laminating press 3.2.12 Circular saw with sliding table 3.2.13 Bench drill 3.2.14 Planner blade sharpening machine 3.2.15 Universal tool grinder (glossary) 3.2.16 Double-end tenoner 3.2.17 Stationary router 3.2.18 Mortizer 3.2.19 Portable drill 3.2.19.1 Hand drill 3.2.19.2 Electric drill
4. Supplies	Supplies may include: 4.1 Machine oil 4.2 Grease 4.3 Cotton Rags 4.4 Sand paper 4.5 Blades 4.6 Drill bits 4.7 PPE's
5. Machine mechanisms	Machine mechanisms may include 5.1. Guide fence 5.2. Stopper 5.3. Blade guards
6. Industry guidelines	Industry guidelines may include: 6.1 Manufacturer's Manual 6.2 Air Emission Standards 6.3 RA 9003-Ecological Solid Waste Management Act of 2000 6.4 OSHS 6.4.1 Rule 1080 6.4.2 Rule 1150

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: <ol style="list-style-type: none"> 1.1. Conducted pre-milling operations 1.2. Set-up machine for milling operation 1.3. Performed milling 1.4. Performed post milling activities 1.5. Practiced safety measures
2. Resource Implications	The following resources should be provided: <ol style="list-style-type: none"> 2.1. Simulated or actual milling operation area 2.2. Materials, tools, equipment and machine relevant to the task to be demonstrated 2.3. PPEs 2.4. References and materials
3. Methods of Assessment	Competency in this unit may be assessed through: <ol style="list-style-type: none"> 3.1. Direct Observation 3.2. Demonstration 3.3. Oral questioning 3.4. Written test 3.5. Third party report
4.Context of Assessment	<ol style="list-style-type: none"> 4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.

UNIT OF COMPETENCY	: LAMINATE BAMBOO MATERIALS
UNIT CODE	: AFF752305
UNIT DESCRIPTOR	: This unit covers the knowledge, skills and attitudes required to carry-out pre-lamination activities, set-up laminating equipment and accessories, apply glue, press and perform post lamination activities

ELEMENT	PERFORMANCE CRITERIA Italicized terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Carry out pre-lamination activities	<p>1.1 Bamboo materials are selected based on product specifications</p> <p>1.2 Bamboo materials are sorted based on shade and thickness and OSHS Rule 1080 and Rule 1150</p> <p>1.3 Tools, machines and equipment are checked for serviceability following OSHS Rule 1070, Rule 1080, Rule 1150 and Rule 1210</p> <p>1.4 Supplies are prepared based on work requirement and OSHS Rule 1080 and Rule 1150</p> <p>1.5 Glue is identified according to work specification and OSHS Rule 1070, Rule 1080 and Rule 1090</p> <p>1.6 Consistency of glue is inspected based on manufacturer's specification and</p>	<p>1.1 Laminating tools and equipment</p> <p>1.2 Supplies</p> <p>1.3 Sorting process</p> <p>1.4 Checking of tools</p> <p>1.5 Familiarization with consistency and types of glue</p> <p>1.6 Inspection procedures</p> <p>1.7 Mensuration and estimation</p> <p>1.8 Basic fundamental mathematics operation</p> <p>1.9 Following manufacturer's manual</p> <p>1.10 Following job specifications</p> <p>1.11 Record keeping</p> <p>1.12 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1090 – Hazardous Materials - Rule 1150 – Materials 	<p>1.2 Selecting bamboo materials</p> <p>1.3 Sorting bamboo materials</p> <p>1.4 Checking of tools, machines, and equipment</p> <p>1.5 Preparing supplies</p> <p>1.6 Identifying glue</p> <p>1.7 Inspecting consistency of glue</p> <p>1.8 Practicing safety measures following OSHS</p>

	OSHS Rule 1070 and Rule 1080	Handling and Storage - Rule 1210 – Electrical Safety	
<p>2. Set up laminating equipment and accessories</p>	<p>2.1 Pressing mechanism of laminating equipment is adjusted according to product specifications and OSHS Rule 1070 and Rule 1080</p> <p>2.2 Laminating jigs are prepared according to product specifications and OSHS Rule 1080 and Rule 1150</p> <p>2.3 Pressure is set according to manufacturer’s manual and OSHS Rule 1080</p> <p>2.4 Glue spreader is adjusted to ensure uniformity of application following OSHS Rule 1080</p>	<p>2.1 Laminating equipment</p> <p>2.2 Preparation of Jigs</p> <p>2.3 Setting up machine tools and equipment</p> <p>2.4 Checking of tools</p> <p>2.5 Inspection procedures</p> <p>2.6 Adjustment of glue spreader</p> <p>2.7 Mensuration and estimation</p> <p>2.8 Following manufacturer’s manual</p> <p>2.9 Following job specifications</p> <p>2.10 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage 	<p>2.1 Adjusting pressing mechanism of laminating equipment</p> <p>2.2 Preparing laminating jigs</p> <p>2.3 Setting pressure</p> <p>2.4 Adjusting glue spreader</p> <p>2.5 Practicing safety measures following OSHS</p>
<p>3. Apply glue</p>	<p>3.1 Glue is loaded in glue spreader based on work requirements and OSHS Rule 1070, Rule 1080 and Rule 1090</p> <p>3.2 Bamboo materials are arranged according to product specification and OSHS Rule 1080 and Rule 1150</p>	<p>3.1 Glue Spreading Rate</p> <p>3.2 Glue spreading</p> <p>3.3 Arranging procedures</p> <p>3.4 Checking procedures</p> <p>3.5 Mensuration and estimation</p> <p>3.6 Following manufacturer’s manual</p> <p>3.7 Following job specifications</p> <p>3.8 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational 	<p>3.1 Loading glue</p> <p>3.2 Arranging bamboo materials</p> <p>3.3 Spreading glue</p> <p>3.4 Checking surfaces</p> <p>3.5 Reapplying glue</p> <p>3.6 Practicing safety measures following OSHS</p>

	<p>3.3 Glue is spread on bamboo materials following standard operating procedures and OSHS Rule 1070, Rule 1080 and Rule 1090</p> <p>3.4 Surfaces are checked to ensure completeness of application following OSHS Rule 1070 and Rule 1080</p> <p>3.5 Reapplication of glue is done on missed surfaces following workplace procedures and OSHS Rule 1080</p>	<p>Health and Environmental Control</p> <ul style="list-style-type: none"> - Rule 1080 – Personal Protective Equipment and Devices - Rule 1090 – Hazardous Materials - Rule 1150 – Materials Handling and Storage 	
<p>4. Perform pressing</p>	<p>4.1 Glued bamboo materials are arranged in laminating jig following OSHS Rule 1080 and Rule 1150</p> <p>4.2 Laminating jig is placed on the pressing mechanism following operations manual and OSHS Rule 1080</p> <p>4.3 Pressure is applied based on operations manual and OSHS Rule 1080</p> <p>4.4 Bamboo materials are checked for displacement</p>	<p>4.1 Setting time</p> <p>4.2 Arranging process</p> <p>4.3 Pressing procedures</p> <p>4.4 Checking procedures</p> <p>4.5 Corrective procedures</p> <p>4.6 Mensuration and estimation</p> <p>4.7 Following manufacturer’s manual</p> <p>4.8 Following job specifications</p> <p>4.9 OSHS</p> <ul style="list-style-type: none"> - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage 	<p>4.1 Arranging glued bamboo materials</p> <p>4.2 Placing laminating jigs</p> <p>4.3 Applying pressure</p> <p>4.4 Checking bamboo materials</p> <p>4.5 Applying corrective measures</p> <p>4.6 Practicing observance of setting time</p> <p>4.7 Practicing safety measures following OSHS</p>

	<p>following Rule 1080</p> <p>4.5 Corrective measures are applied for displaced bamboo materials following product specifications and OSHS Rule 1080</p> <p>4.6 Observance of setting time is practiced with reference to glue specification following OSHS Rule 1080</p>		
<p>5. Perform post lamination activities</p>	<p>5.1. Laminated bamboo materials are unloaded following workplace procedure and OSHS Rule 1080 and Rule 1150</p> <p>5.2. Laminated bamboo materials are cured based on standard operating procedures and OSHS Rule 1080</p> <p>5.3. Laminated bamboo materials are removed from jig following workplace procedure and OSHS Rule 1080 and Rule 1150</p> <p>5.4. Delaminated bamboo materials are</p>	<p>5.1 Curing time 5.1.1 Hardening/drying</p> <p>5.2 Unloading procedures</p> <p>5.3 Storing procedures</p> <p>5.4 Waste segregation procedures</p> <p>5.5 5S of Good Housekeeping</p> <p>5.6 Segregation procedures</p> <p>5.7 Mensuration and estimation</p> <p>5.8 Following manufacturer's manual</p> <p>5.9 Following job specifications</p> <p>5.10 Environmental Issues</p> <p>5.11 Waste management</p> <p>5.12 RA 9003-Ecological Solid Waste Management Act of 2000</p> <p>5.13 OSHS - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials</p>	<p>5.1 Unload laminated bamboo materials</p> <p>5.2 Storing laminated bamboo materials</p> <p>5.3 Removing laminated bamboo materials from jig</p> <p>5.4 Segregating delaminated bamboo materials</p> <p>5.5 Inspecting laminated bamboo materials</p> <p>5.6 Employing proper waste disposal</p> <p>5.7 Accomplishing documentation</p> <p>5.8 Maintaining and storing tools, supplies, machines and equipment.</p> <p>5.9 Practicing 5S of Good Housekeeping</p> <p>5.10 Practicing safety measures following OSHS</p>

	<p>segregated following industry procedures and OSHS Rule 1080 and Rule 1150</p> <p>5.5. Waste management is practiced according to Ecological Solid Waste Management Act of 2000</p> <p>5.6. Documentation is accomplished based on work requirement</p> <p>5.7. Tools, supplies, machine and equipment are maintained and stored following OSHS Rule 1080</p> <p>5.8. Workplace area is restored following principle of 5S of Good Housekeeping</p>	<p>Handling and Storage</p>	
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RANGE OF VARIABLES

VARIABLE	RANGE
1. Bamboo materials	Bamboo materials may include <ol style="list-style-type: none"> 1. Semi-processed bamboo materials <ol style="list-style-type: none"> 1.1 Slats 1.2 Slivers 1.3 Crushed bamboo 1.4 Bamboo mats 2. Kiln dried bamboo materials <ol style="list-style-type: none"> 2.1 slats 2.2 slivers 2.3 crushed bamboo 2.4 bamboo mats 3. laminated bamboo materials <ol style="list-style-type: none"> 3.1 layered slats 3.2 bamboo panels 3.3 bamboo planks 3.4 bamboo lumber/post
2. Tools, Machines and Equipment	Tools, machine and equipment may include: <ol style="list-style-type: none"> 1. Tools <ol style="list-style-type: none"> 1.1 Measuring tools <ol style="list-style-type: none"> 1.1.1 Caliper 1.1.2 Measuring tape 1.1.3 Try-square 1.2. Hammer 1.3 Adjustable wrench 1.4 Pliers 1.5 Glue spreader 1.6 Screw driver <ol style="list-style-type: none"> 1.6.1 Philip screw driver 1.6.2 Flat screw driver 1.7 Cleaning tools: <ol style="list-style-type: none"> 1.7.1 Broom 1.7.2 Dust pan 1.7.3 Garbage bin 1.7.4 Sacks 1.8 Clamps 1.9 Paint roller 1.10 Paint brush 1.11 Paint tray 2. Machines and equipment: <ol style="list-style-type: none"> 2.1 air compressor 2.2 laminating table with pneumatic press 2.3 laminating jigs 2.4 glue spreader 2.5 jack lifter
3. Supplies	3.1 Supplies may include:

VARIABLE	RANGE
	3.2 Machine oil 3.3 Grease 3.4 Cotton Rags 3.5 Sand paper 3.6 Glue 3.7 Common nails 3.8 Plastic cover 3.9 ¾ inch X 4 ft. X 8 ft. plywood 3.10lumber (2X2inchX8ft) 3.11 PPE's
4. Glue	Glue may include: 4.1 Thermo setting 4.2 Cold setting
5. Laminating equipment	Laminating equipment may include: 5.1 Pneumatic press 5.2 Hydraulic press 5.3 Mechanical press/Clamp 5.3.1 bar clamp 5.3.2 c - clamp
6. Glue spreader	Glue spreader may include: 6.1 Mechanized 6.2 Manual

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Carried-out pre-lamination activities 1.2 Set-up laminating equipment and accessories 1.3 Applied glue 1.4 Performed pressing 1.5 Performed post-lamination activities 1.6 Practiced safety measures
2. Resource Implications	The following resources should be provided: 2.1 Simulated or actual operation area 2.2 Materials, tools, equipment and machine relevant to the task to be demonstrated 2.3 PPEs 2.4 References and materials
3. Methods of Assessment	Competency in this unit may be assessed through: 3.3 Direct Observation 3.4 Demonstration 3.5 Oral interview and/or written test 3.6 Third party report
4.Context of Assessment	4.2 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.

UNIT OF COMPETENCY : **PRODUCE ENGINEERED BAMBOO**

UNIT CODE : **AFF752306**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to prepare pre-production activities, produce jigs, produce product components, perform profiling, make joineries, assemble product and perform post production activities

ELEMENT	PERFORMANCE CRITERIA Italicized terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Conduct pre-production activities	1.1 Product specifications are confirmed based on client's requirement 1.2 Materials and supplies are selected based on work requirement and OSHS Rule 1080 1.3 Tools, machines and equipment are prepared according to product specification and OSHS Rule 1080 and Rule 1150	1.1 Product specification 1.2 Selection process 1.3 Different tools, machines and equipment 1.4 Checking of tools 1.5 Inspection procedures 1.6 Mensuration and estimation 1.7 Following job specifications 1.8 Waste Management 1.9 OSHS - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage	1.2 Confirming product specifications 1.3 Selecting materials 1.4 Preparing tools, machines and equipment 1.5 Practicing safety measures following OSHS
2. Produce product components	2.1 Drawing plan is interpolated following established industry practices 2.2 Jigs are prepared based on product specifications and	2.1 Interpolation of drawing plan 2.2 Lamination procedure 2.3 Milling operations 2.4 Shaping operation	2.2 Interpolating drawing plan 2.3 Preparing jigs 2.4 Laminating bamboo materials 2.5 Performing milling operations

	<p>OSHS Rule 1080 and Rule 1150</p> <p>2.3 Bamboo materials are laminated following standard process and OSHS Rule 1080</p> <p>2.4 Milling operations are performed according to required dimensions and OSHS Rule 1080 and Rule 1210</p> <p>2.5 Machines are used following operations manual and OSHS Rule 1080</p> <p>2.6 Component are shaped based on product specifications and OSHS Rule 1080 and Rule 1070</p>	<p>2.5 Mensuration and estimation</p> <p>2.6 Following job specifications</p> <p>2.7 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices - Rule 1150 – Materials Handling and Storage - Rule 1210 – Electrical Safety 	<p>2.6 Operating machines</p> <p>2.7 Shaping components</p> <p>2.8 Practicing safety measures following OSHS</p>
<p>3. Perform profiling</p>	<p>3.1 Work piece is checked for readiness in profiling based on established procedures</p> <p>3.2 Profile cutter and machines are prepared according to work requirements and OSHS Rule 1080</p> <p>3.3 Tools and machines are used for profiling following product specifications, manufacturer's manual and OSHS Rule 1080</p> <p>3.4 Sample cuts are produced for design conformity based on product specifications and OSHS Rule 1080</p> <p>3.5 Adjustments are made based on the test run and OSHS</p>	<p>3.1 Profile designs</p> <p>3.2 Profile Cutter and Machines</p> <p>3.3 Profiling procedures</p> <p>3.4 Sample cutting procedures</p> <p>3.5 Machine operation</p> <p>3.6 Mensuration and estimation</p> <p>3.7 Following job specifications</p> <p>3.8 OSHS</p> <ul style="list-style-type: none"> - Rule 1080 – Personal Protective equipment and Devices - Rule 1150 – Materials Handling and Storage 	<p>3.1 Producing prototype</p> <p>3.2 Submitting prototype to immediate supervisor</p> <p>3.3 Interpreting profile design</p> <p>3.4 Checking work piece</p> <p>3.5 Preparing profile cutter and machine</p> <p>3.6 Using tools and machines</p> <p>3.7 Producing sample cuts</p> <p>3.8 Making adjustment</p> <p>3.9 Practicing safety measures following OSHS</p>

	Rule 1080 and Rule 1150		
4. Make joineries	<p>4.1 Joineries are identified based on product designs</p> <p>4.2 Components are checked for conformity based on product specifications</p> <p>4.3 Lay outing is performed based on product design and OSHS Rule 1080</p> <p>4.4 Machine is operated for joineries production following operations manual and OSHS Rule 1070 and Rule 1080</p> <p>4.5 Pre-assembling is performed following product specifications and OSHS Rule 1080 and Rule 1150</p>	<p>4.1 Types of Joinery</p> <p>4.2 Different furniture joints</p> <p>4.3 Procedures in making joints</p> <p>4.4 Lay-outting procedures</p> <p>4.5 Machine operation</p> <p>4.6 Pre-assembling procedures</p> <p>4.7 Mensuration and estimation</p> <p>4.8 Finish milling procedures</p> <p>4.9 Following job specifications</p> <p>4.10 OSHS</p> <ul style="list-style-type: none"> - Rule 1080 – Personal Protective equipment and Devices - Rule 1150 – Materials Handling and Storage 	<p>4.1 Identifying joineries</p> <p>4.2 Checking components</p> <p>4.3 Performing lay outing</p> <p>4.4 Operating machines</p> <p>4.5 Performing pre-assembly</p> <p>4.6 Practicing safety</p> <p>4.7 Using measuring tools</p> <p>4.8 Performing finish milling</p> <p>4.9 Practicing safety measures following OSHS</p>
5. Assemble product	<p>5.1 Components are checked for conformity based on product specification</p> <p>5.2 Pre-assembling is performed following working drawings and OSHS Rule 1080 and Rule 1150</p> <p>5.3 Adjustments are applied based on the result of pre-assembling and OSHS Rule 1080</p> <p>5.4 Components are fixed using appropriate fixing materials following OSHS Rule 1080</p> <p>5.5 Product assembling is performed following working drawings and</p>	<p>5.1 Different Fixing materials</p> <p>5.2 Pre-assembly and assembly procedures</p> <p>5.3 Fixing procedures</p> <p>5.4 Adjustment procedures</p> <p>5.5 Basic carpentry</p> <p>5.6 Mensuration and estimation</p> <p>5.7 Following job specifications</p> <p>5.8 OSHS</p> <ul style="list-style-type: none"> - Rule 1080 – Personal Protective equipment and Devices - Rule 1150 – Materials Handling and Storage 	<p>5.1 Checking components</p> <p>5.2 Performing pre-assembly</p> <p>5.3 Applying adjustment</p> <p>5.4 Fixing components</p> <p>5.5 Basic carpentry skills</p> <p>5.6 Practicing safety measures following OSHS</p>

	OSHS Rule 1080 and Rule 1150		
6. Perform post production activities	<p>6.1 Quality control of end-products is employed based on product specifications and OSHS Rule 1080 and Rule 1150</p> <p>6.2 Corrective measures are applied based on product specifications and OSHS Rule 1080</p> <p>6.3 Tools and machines are maintained and stored following workplace procedure and OSHS Rule 1080 and Rule 1150</p> <p>6.4 Inventory and storage of supplies and materials are done following workplace procedures and OSHS Rule 1080 and Rule 1150</p> <p>6.5 Workplace is restored according following principles of 5S of Good Housekeeping.</p> <p>6.6 Documentation and report preparation is done according to work requirements.</p> <p>6.7 Waste management is practiced according to Ecological Solid Waste Management Act of 2000</p>	<p>6.1 Corrective measure</p> <p>6.2 Quality control procedures Maintenance and Storing procedures</p> <p>6.3 Mensuration and estimation</p> <p>6.4 Following job specifications</p> <p>6.5 RA 9003- Ecological Solid Waste Management Act of 2000</p> <p>6.6 OSHS</p> <ul style="list-style-type: none"> - Rule 1080 – Personal Protective equipment and Devices - Rule 1150 – Materials Handling and Storage 	<p>6.1 Employing quality control</p> <p>6.2 Applying corrective measure</p> <p>6.3 Maintaining tools and machines</p> <p>6.4 Performing inventory and storage</p> <p>6.5 Practicing safety</p> <p>6.6 Oral and written reporting</p> <p>6.7 Practicing principles of 5S of Good housekeeping</p> <p>6.8 Practicing safety measures following OSHS</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Product specifications	Product specifications may include 1.1 Novelty items 1.1.1 plaque 1.1.2 mug coaster 1.1.3 key chains 1.1.4 kitchen utensils 1.1.5 name plates 1.1.6 clocks 1.1.7 pot coaster 1.1.8 decorative products 1.1.9 Trophy 1.1.10 Medals 1.1.11 speaker 1.2 Construction materials 1.2.1 Bamboo Flooring and tiles 1.2.2 Bamboo Parquet 1.2.3 Cornice 1.2.4 Baseboards 1.2.5 Balusters 1.2.6 Bamboo Panels 1.2.7 Bamboo lumber/post 1.3 Furniture and furnishing 1.3.1 Tables 1.3.2 Chairs 1.3.3 Beds 1.3.4 Cabinets 1.3.5 Stairs 1.3.6 Rails 1.3.7 Frames 1.3.8 Bamboo dividers
2. Materials and supplies	Materials and supplies may include: 2.1 Router bits 2.2 Profile blades 2.3 Drill bits 2.4 Nailer 2.5 Staple wire 2.6 Furniture fixtures 2.6.1 Butterfly hinges 2.6.2 Piano hinges 2.6.3 Drawer slides 2.6.4 Drawer handles 2.6.5 Magnetic catches 2.6.6 Drawer lock
3. Tools, machines and equipment	Tools, machines and equipment may include: 3.1 Hand/Pneumatic Tools 3.1.1 hammer

VARIABLE	RANGE
	<ul style="list-style-type: none"> 3.1.2 chisel (different sizes) 3.1.3 coping saw 3.1.4 hand saw 3.1.5 File 3.1.6 Pneumatic nailer 3.1.7 Clamps <ul style="list-style-type: none"> -bar clamp -c-clamp 3.1.8 Pneumatic tucker 3.1.9 L-square 3.1.10 Measuring tape 3.1.11 Hand planer 3.1.12 Hole saw 3.2 Portable tools <ul style="list-style-type: none"> 3.2.1 Portable sander 3.2.2 Portable drill 3.2.3 Portable trimmer 3.2.4 Portable router 3.2.5 Portable jig saw 3.3 Machines and equipment <ul style="list-style-type: none"> 3.3.1 band saw 3.3.2 scroll saw 3.3.3 router machine 3.3.4 lathe machine 3.3.5 arm saw 3.3.6 table saw 3.3.7 sanding machine 3.3.8 Jointer planer 3.3.9 Thickness planer 3.3.10 Four side planer 3.3.11 Planer blade sharpener 3.3.12 Universal grinding machine 3.3.13 Shaper 3.3.14 Mortiser 3.3.15 Tenoner 3.3.16 Air compressor 3.3.17 Bench Drill 3.3.18 Circular saw with sliding table 3.3.19 Double-end tenoner 3.3.20 Single spindle molder/shaper 3.3.21 Stationary router 3.3.22 Double-head bench grinder
4. Jigs	Jigs includes: <ul style="list-style-type: none"> 4.1 Composing jigs 4.2 Processing jigs 4.3 Assembly jigs
5. Preparation of jigs	Preparation of jigs may include: <ul style="list-style-type: none"> 5.1 Cleaning of jigs

VARIABLE	RANGE
	5.2 Set up jigs 5.3 Repair of defective parts of jigs 5.4 Segregation of damaged jigs
6. Components	Components may include: 6.1 Bent laminated components 6.2 Irregularly shaped components 6.3 Turned laminated components 6.4 Straight-shaped components
7. Profile cutter	Profile cutter may include: 7.1 Band saw blade 7.2 Jig saw blade 7.3 Scroll saw blade 7.4 Circular saw blade
8. Joineries	Joineries may include: 8.1 Mortise and tenon 8.2 Overlap tenon 8.3 V-type 8.4 Biscuit joint 8.5 Dowell joint 8.6 Spline joint 8.7 Fortified joint 8.8 Half lap 8.9 Dado joint
9. Fixing materials	Fixing materials may include: 9.1 Common Nails 9.2 Brad Nails 9.3 Screws 9.4 Bolt and Nut 9.5 Dowels 9.6 Glue 9.7 nailer

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Prepared for pre-production activities 1.2 Produced product components 1.3 Performed profiling 1.4 Made joineries 1.5 Assembled product 1.6 Performed post-production activities
2. Resource Implications	The following resources should be provided: 2.1 Simulated or actual operation area 2.2 Materials, tools, equipment and machine relevant to the task to be demonstrated 2.3 PPEs 2.4 References and materials
3. Methods 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	4.10 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.

UNIT OF COMPETENCY : **PERFORM FINISHING**

UNIT CODE : **AFF752307**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to carry-out pre-finishing activities, surface preparation, apply finishing materials and perform post- finishing activities

ELEMENT	PERFORMANCE CRITERIA Italicized terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Carry out pre-finishing activities	1.1 <i>Type of finish</i> is confirmed with the immediate supervisor 1.2 E-bamboo products are prepared for finishing following OSHS Rule 1070 and Rule 1080 1.3 <i>Finishing materials and supplies</i> are prepared based on work requirement and OSHS Rule 1080 1.4 <i>Tools, machines and equipment</i> are prepared according to product specification and OSHS Rule 1080	1.1 Preparation of tools, materials and equipment 1.2 Type of Finishes 1.3 Different finishing materials and supplies 1.4 Corrective measure 1.5 Quality control procedures 1.6 Mensuration and estimation 1.7 Following job specifications 1.8 OSHS <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices 	1.1 Confirming type of finish to immediate supervisor 1.2 Preparing E-bamboo products 1.3 Preparing finishing materials and supplies 1.4 Preparing tools, machines and equipment 1.5 Practicing safety measures following OSHS 1.6 Practicing 5S of good housekeeping
2. Perform surface preparation	2.1 <i>Surface contaminants</i> are identified and removed according to standard	2.1 Surface contaminants 2.2 Surface Defects	2.1 Identifying surface contaminants

	<p>operating procedures and OSHS Rule 1080</p> <p>2.2 Surface defects are located and rectified according to standard operating procedures and OSHS Rule 1080</p> <p>2.3 Sand paper is selected following standard operating procedure</p> <p>2.4 Surfaces are sanded following standard operating procedure and OSHS Rule 1080</p> <p>2.5 Tools and machines are used following operation manuals and OSHS Rule 1070 and Rule 1080</p>	<p>2.3 Different sanding tools and Machines</p> <p>2.4 Selection of Sandpaper</p> <p>2.5 Sanding procedures</p> <p>2.6 Mensuration and estimation</p> <p>2.7 Following job specifications</p> <p>2.8 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices 	<p>2.2 Locating and rectifying surface defects</p> <p>2.3 Selecting sandpaper</p> <p>2.4 Sanding surfaces</p> <p>2.5 Using tools and machines</p> <p>2.6 Practicing safety measures following OSHS</p>
<p>3. Apply finishing materials</p>	<p>3.1 Finishing materials are mixed following product specifications and OSHS Rule 1070 and Rule 1080</p> <p>3.2 Coat is applied following product specifications and established standard procedure and OSHS Rule</p>	<p>3.1 Type of Coats</p> <p>3.2 Mixing procedure</p> <p>3.3 Coating procedures</p> <p>3.4 Toning procedures</p> <p>3.5 Mensuration and estimation</p> <p>3.6 Following job specifications</p> <p>3.7 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control 	<p>3.1 Checking shades before and after application</p> <p>3.2 Mixing finishing materials</p> <p>3.3 Applying coat</p> <p>3.4 Confirming shade of mixture</p> <p>3.5 Performing toning</p> <p>3.6 Practicing safety measures following OSHS</p>

	<p>1070 and Rule 1080</p> <p>3.3 Shade of mixture is confirmed based on product specifications and OSHS Rule 1080</p> <p>3.4 Toning is performed according to product specifications and OSHS Rule 1070 and Rule 1080</p>	<ul style="list-style-type: none"> - Rule 1080 – Personal Protective Equipment and Devices 	
<p>4. Perform post finishing activities</p>	<p>4.1 Quality control of end-products is employed based on product specifications and OSHS Rule 1080</p> <p>4.2 Corrective measures are applied based on product specifications and OSHS Rule 1080</p> <p>4.3 Finished products are packed following established industry procedures and OSHS Rule 1080 and Rule 1150</p> <p>4.4 Tools and machines are maintained and stored following workplace procedure and OSHS Rule 1080</p> <p>4.5 Inventory and storage of</p>	<p>4.1 Quality control</p> <p>4.2 Corrective measure</p> <p>4.3 Quality control procedures</p> <p>Maintenance and Storing procedures</p> <p>4.4 Mensuration and estimation</p> <p>4.5 Following job specifications</p> <p>4.6 RA 9003-Ecological Solid Waste Management Act of 2000</p> <p>4.7 RA 6969-Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990</p> <p>4.8 RA 9275 – Clean Water Act of 2004</p> <p>4.9 OSHS</p> <ul style="list-style-type: none"> - Rule 1070 – Occupational Health and Environmental Control - Rule 1080 – Personal Protective Equipment and Devices 	<p>4.1 Employing quality control</p> <p>4.2 Applying corrective measures</p> <p>4.3 Maintaining and storing tools, and machines</p> <p>4.4 Practicing safety measures following OSHS</p> <p>4.5 Oral and written reporting</p> <p>4.6 Practicing principles of 5S of Good housekeeping</p>

	<p>supplies and materials are done following workplace procedures and OSHS Rule 1080 and Rule 1150</p> <p>4.6 Workplace is restored according following principles of 5S of Good Housekeeping.</p> <p>4.7 Documentation and report preparation is done according to work requirements.</p> <p>4.8 Waste management is practiced according to <i>environmental laws.</i></p>		
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RANGE OF VARIABLES

VARIABLE	RANGE
1. Type of finish	Type of finish may include: 1.1 natural 1.2 stain 1.3 bleach
2. Finishing materials and supplies	<p>Finishing materials include:</p> 2.1 Sanding sealer 2.2 lacquer thinner 2.3 paint thinner 2.4 tinting color 2.5 stain 2.6 clear gloss lacquer 2.7 lacquer flo 2.8 polyurethane 2.9 bleach 2.10 reducer 2.11 varnish
3. Tools, machines and equipment	<p>Supplies:</p> 2.1 sand paper 2.2 Paint brush 2.3 Cotton Rags 2.4 Stirring rod 2.5 Paint roller
4. Surface contaminants	<p>PPEs</p> 2.1 mask 2.2 goggles 2.3 apron 2.4 gloves 2.5 long sleeves 2.6 rubber shoes
3. Tools, machines and equipment	<p>Tools:</p> 3.1 Sanding block 3.2 Spray gun with accessories 3.3 portable sander 3.3.1 Pneumatic sander 3.3.2 Electric sander 3.3.3 Portable belt sander
4. Surface contaminants	<p>Machines and equipment:</p> 3.4 Spray booth 3.5 Air compressor 3.6 Finishing tables 3.7 Sander
4. Surface contaminants	Surface contaminants may include: 4.1 Excess glue 4.2 Oil 4.3 Grease 4.4 Pen marks

VARIABLE	RANGE
	4.5 Water 4.6 Dust
5. Surface defects	Surface defects may include 5.1 Cracks 5.2 Splits 5.3 Glue line 5.4 Dents 5.5 Scratch marks 5.6 Cutter marks 5.7 Pin holes
6. Coat	Coat may include: Base Coat 6.1 Wood filler 6.2 Stain 6.3 bleach Primary coat 6.1 Sanding sealer Top Coat 6.2 Varnish 6.3 Mixture of Clear gloss, Lacquer thinner and Lacquer flo 6.4 Mixture of Polyurethane and reducer
7. Coat application	Coat application may include 7.1 Brushing 7.2 Dipping 7.3 Spraying
8. Packaging tools and materials	Packaging materials may include but not limited to: 8.1 Plastic bags (single film/laminates) 8.2 Cartons (master/inner) 8.3 Carton straps 8.4 Packing tapes 8.5 Old news paper Packaging tools may include but not limited to: 8.6 Tape/Adhesive dispenser 8.7 Cutter 8.8 Scissor 8.9 Portable strapper
9. Environmental Laws	Environmental laws may include: 9.1 RA 9003-Ecological Solid Waste Management Act of 2000 9.2 RA 6969-Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 9.3 RA 9275 – Clean Water Act of 2004

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Carried-out pre-finishing activities 1.2 Performed surface preparation 1.3 Applied finishing materials 1.4 Performed post-finishing activities 1.5 Practiced safety measures
2. Resource Implications	The following resources should be provided: 2.1 Simulated or actual operation area 2.2 Materials, tools, equipment and machine relevant to the task to be demonstrated 2.3 PPEs 2.4 References and materials
3. Methods 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 in actual workplace or at the designated TESDA Accredited Assessment Center in a simulated workplace setting.

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 **BAMBOO PROCESSING (ENGINEERED BAMBOO) NCII**.

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 include Technology, Science, Math, English/Communication, and Environmental Awareness and Safety. The curriculum design should also incorporate green technology, issues on health, drugs and gender and concerns relating to people with disabilities (PWDs).

Course Title: **BAMBOO PROCESSING NC Level NC II**

Nominal Training Duration:

37 hrs Basic Competencies

72 hrs Common Competencies

305 hrs Core Competencies

Total 414 hrs

Course Description:

This course is designed to provide the learner with knowledge, practical skills and attitudes applicable in performing work activities involve in performing basic bamboo processing, carrying-out treatment of semi-processed bamboo materials, performing kiln drying, performing milling operation, laminating bamboo materials and producing engineered bamboo and performing finishing. This include classroom learning activities and practical work in actual work site or simulation area.

Upon completion of the course, the learners are expected to demonstrate the above-mentioned competencies to be employed. To obtain this, all units prescribed for this qualification must be achieve.

BASIC COMPETENCIES

(37 HOURS)

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
1. Participate in workplace communication	1.1. Obtain and convey workplace information	<ul style="list-style-type: none"> • Describe Organizational policies • Read: <ul style="list-style-type: none"> ○ Effective communication ○ Written communication ○ Communication procedures and systems • Identify: <ul style="list-style-type: none"> ○ Different modes of communication ○ Medium of communication ○ Flow of communication ○ Available technology relevant to the enterprise and the individual's work responsibilities • Prepare different Types of question • Gather different sources of information • Apply storage system in establishing workplace information • Demonstrate Telephone courtesy 	<ul style="list-style-type: none"> • Group discussion • Lecture • Demonstration 	<ul style="list-style-type: none"> • Oral evaluation • Written examination • Observation 	2 hours
	1.2. Perform duties following workplace instructions -	<ul style="list-style-type: none"> • Read: <ul style="list-style-type: none"> ○ Written notices and instructions ○ Workplace interactions and procedures • Read instructions on work related forms/documents • Perform workplace duties scenario following workplace instructions 	<ul style="list-style-type: none"> • Group discussion • Lecture • Demonstration 	<ul style="list-style-type: none"> • Oral evaluation • Written examination • Observation 	2 hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	1.3. Complete relevant work related documents	<ul style="list-style-type: none"> • Describe Communication procedures and systems • Read: <ul style="list-style-type: none"> ○ Meeting protocols ○ Nature of workplace meetings ○ Workplace interactions ○ Barriers of communication • Read instructions on work related forms/documents • Practice: <ul style="list-style-type: none"> ○ Estimate, calculate and record routine workplace measures ○ Basic mathematical processes of addition, subtraction, division and multiplication • Demonstrate office activities in: <ul style="list-style-type: none"> ○ workplace meetings and discussions scenario • Perform workplace duties scenario following simple written notices • Follow simple spoken language • Identify the different Non-verbal communication • Demonstrate ability to relate to people of social range in the workplace • Gather and provide information in response to workplace requirements • Complete work related documents 	<ul style="list-style-type: none"> • Group discussion • Lecture • Demonstration • Role play 	<ul style="list-style-type: none"> • Oral evaluation • Written examination • Observation 	2 hours
2. Work in a team environment	2.1 Describe team role and scope	<ul style="list-style-type: none"> • Discussion on team roles and scope • Participate in the discussion: <ul style="list-style-type: none"> ○ Definition of Team ○ Difference between team and group ○ Objectives and goals of team • Locate needed information from the different sources of information 	<ul style="list-style-type: none"> • Lecture/ Discussion • Group Work • Individual Work • Role Play 	<ul style="list-style-type: none"> • Role Play • Case Study • Written Test 	1 hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	2.2 Identify one's role and responsibility within team	<ul style="list-style-type: none"> • Role play : <ul style="list-style-type: none"> ○ individual role and responsibility • Role Play <ul style="list-style-type: none"> ○ Understanding Individual differences • Discussion on gender sensitivity 	<ul style="list-style-type: none"> • Role Play • Lecture/ Discussion 	<ul style="list-style-type: none"> • Role Play • Written Test 	1 hour
	2.3 Work as a team member	<ul style="list-style-type: none"> • Participate in group planning activities • Role play : Communication protocols • Participate in the discussion of standard work procedures and practices 	<ul style="list-style-type: none"> • Group work • Role Play • Lecture/ Discussion 	<ul style="list-style-type: none"> • Role Play • Written Test 	1 hour
3. Solve/address routine problems	3.1 Identify routine problems	<ul style="list-style-type: none"> • Review of the current industry hardware and software products and services • Identify correctly the industry maintenance, service and helpdesk practices, processes and procedures • Make use of the industry standard diagnostic tools • Share best practices in determining basic malfunctions and resolutions to general problems in the workplace • Analyze routine/procedural problems 	<ul style="list-style-type: none"> • Group discussion • Lecture • Demonstration • Role playing 	<ul style="list-style-type: none"> • Case Formulation • Life Narrative Inquiry (Interview) • Standardized test 	1 hour
	3.2 Look for solutions to routine problems	<ul style="list-style-type: none"> • Review of the current industry hardware and software products and services • Identify correctly the industry maintenance, service and helpdesk practices, processes and procedures • Make use of the industry standard diagnostic tools • Share best practices in determining basic malfunctions and resolutions to general problems in the workplace 	<ul style="list-style-type: none"> • Group discussion • Lecture • Demonstration • Role playing 	<ul style="list-style-type: none"> • Case Formulation • Life Narrative Inquiry (Interview) • Standardized test 	1 hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		<ul style="list-style-type: none"> Formulate possible solutions to problems and document procedures for reporting 			
	3.1 Recommend solutions to problems	<ul style="list-style-type: none"> Discuss standard operating procedures and documentation processes 	<ul style="list-style-type: none"> Group discussion Lecture Demonstration Role playing 	<ul style="list-style-type: none"> Case Formulation Life Narrative Inquiry (Interview) Standardized test 	1 hour
4. Develop Career and Life Decisions	4.1 Manage one's emotion	<ul style="list-style-type: none"> Demonstrate self-management strategies that assist in regulating behavior and achieving personal and learning goals Explain enablers and barriers in achieving personal and career goals Identify techniques in handling negative emotions and unpleasant situation in the workplace such as frustration, anger, worry, anxiety, etc. Manage properly one's emotions and recognize situations that cannot be changed and accept them and remain professional Recall instances that demonstrate self-discipline, working independently and showing initiative to achieve personal and career goals Share experiences that show confidence, and resilience in the face of setbacks and frustrations and other negative emotions and unpleasant situations in the workplace 	<ul style="list-style-type: none"> Discussion Interactive Lecture Brainstorming Demonstration Role-playing 	<ul style="list-style-type: none"> Demonstration or simulation with oral questioning Case problems involving workplace diversity issues 	1 hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	4.2 Develop reflective practice	<ul style="list-style-type: none"> • Enumerate strategies to improve one's attitude in the workplace • Explain Gibbs' Reflective Cycle/Model (Description, Feelings, Evaluation, Analysis, Conclusion, and Action plan) • Use basic SWOT analysis as self-assessment strategy • Develop reflective practice through realization of limitations, likes/ dislikes; through showing of self-confidence • Demonstrate self-acceptance and being able to accept challenges 	<ul style="list-style-type: none"> • Small Group Discussion • Interactive Lecture • Brainstorming • Demonstration • 5 Role-playing 	<ul style="list-style-type: none"> • Demonstration or simulation with oral questioning • Case problems involving workplace diversity issues 	1 hour
	4.3 Boost self-confidence and develop self-regulation	<ul style="list-style-type: none"> • Describe the components of self-regulation based on Self-Regulation Theory (SRT) • Explain personality development concepts • Cite self-help concepts (e. g., 7 Habits by Stephen Covey, transactional analysis, psycho-spiritual concepts) • Perform effective communication skills – reading, writing, conversing skills • Show affective skills – flexibility, adaptability, etc. • Determine strengths and weaknesses 	<ul style="list-style-type: none"> • Small Group Discussion • Interactive Lecture • Brainstorming • Demonstration • Role-playing 	<ul style="list-style-type: none"> • Demonstration or simulation with oral questioning • Case problems involving workplace diversity issues 	1 hour
5. Contribute to workplace innovation	5.1 Identify opportunities to do things better	<ul style="list-style-type: none"> • Identify different roles of individuals in contributing to doing things better in the workplace • Appreciate positive impacts and challenges in innovation • Show mastery of the different types of changes and levels of participation in the workplace • Discuss 7 habits of highly effective people 	<ul style="list-style-type: none"> • Interactive Lecture • Appreciative Inquiry • Demonstration • Group work 	<ul style="list-style-type: none"> • Psychological and behavioral Interviews • Performance Evaluation • Life Narrative Inquiry • Review of portfolios of evidence and third-party workplace 	1 hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
				reports of on-the-job performance. • Standardized assessment of character strengths and virtues applied	
	5.2 Discuss and develop ideas with others	<ul style="list-style-type: none"> • Identify different roles of individuals in contributing to doing things better in the workplace • Appreciate positive impacts and challenges in innovation • Show mastery of the different types of changes and levels of participation in the workplace • Discuss 7 habits of highly effective people • Communicate ideas through small group discussions and meetings 	<ul style="list-style-type: none"> • Interactive Lecture • Appreciative Inquiry • Demonstration • Group work 	<ul style="list-style-type: none"> • Psychological and behavioral Interviews • Performance Evaluation • Life Narrative Inquiry • Review of portfolios of evidence and third-party workplace reports of on-the-job performance. • Standardized assessment of character strengths and virtues applied 	1 hour
	5.3 Integrate ideas for change in the workplace	<ul style="list-style-type: none"> • Identify different roles of individuals in contributing to doing things better in the workplace • Appreciate positive impacts and challenges in innovation 	<ul style="list-style-type: none"> • Interactive Lecture • Appreciative Inquiry • Demonstration • Group work 	<ul style="list-style-type: none"> • Psychological and behavioral Interviews • Performance Evaluation • Life Narrative Inquiry 	1 hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		<ul style="list-style-type: none"> • Show mastery of the different types of changes and levels of participation in the workplace • Discuss 7 habits of highly effective people • Communicate ideas through small group discussions and meetings • Demonstrate basic skills in data analysis 		<ul style="list-style-type: none"> • Review of portfolios of evidence and third-party workplace reports of on-the-job performance. • Standardized assessment of character strengths and virtues applied 	
6. Present relevant information	6.1 Gather data/ information	<ul style="list-style-type: none"> • Lecture and discussion on: <ul style="list-style-type: none"> ○ Organisational protocols ○ Confidentiality and accuracy ○ Business mathematics and statistics ○ Legislation, policy and procedures relating to the conduct of evaluations • Reviewing data/ information 	<ul style="list-style-type: none"> • Group discussion • Lecture • Demonstration • Role Play 	<ul style="list-style-type: none"> • Oral evaluation • Written Test • Observation • Presentation 	2 Hours
	6.2 Assess gathered data/ information	<ul style="list-style-type: none"> • Lecture and discussion on: <ul style="list-style-type: none"> ○ Data analysis techniques/ procedures ○ Organisational values, ethics and codes of conduct ○ Trends and anomalies • Computing business mathematics and statistics • Application of data analysis techniques 	<ul style="list-style-type: none"> • Group discussion • Lecture • Demonstration • Role Play • Practical exercises 	<ul style="list-style-type: none"> • Oral evaluation • Written Test • Observation • Presentation 	3 Hours
	6.3 Record and present information	<ul style="list-style-type: none"> • Lecture and discussion on: <ul style="list-style-type: none"> ○ Reporting requirements to a range of audiences ○ Recommendations for possible improvements 	<ul style="list-style-type: none"> • Group discussion • Lecture • Demonstration • Role Play • Practical exercises 	<ul style="list-style-type: none"> • Oral evaluation • Written Test • Observation • Presentation 	3 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		<ul style="list-style-type: none"> • Analysis and comparison of interim and final reports' outcomes • Reporting of data findings 			
7. Practice Occupational Safety And Health Policies And Procedures	7.1 Identify OSH compliance requirements	<ul style="list-style-type: none"> • Discussion regarding: <ul style="list-style-type: none"> - Hierarchy of Controls - Hazard Prevention and Controls - Work Standards and Procedures - Personal Protective Equipment 	<ul style="list-style-type: none"> • Lecture • Group Discussion 	<ul style="list-style-type: none"> • Written Exam • Demonstration • Observation • Interviews / Questioning 	1 Hour
	7.2 Prepare OSH requirements for compliance	<ul style="list-style-type: none"> • Identification of required safety materials, tools and equipment • Handling of safety control resources 	<ul style="list-style-type: none"> • Lecture • Group Discussion 	<ul style="list-style-type: none"> • Written Exam • Demonstration • Observation • Interviews / Questioning 	1 Hour
	7.3 Perform tasks in accordance with relevant OSH policies and procedures	<ul style="list-style-type: none"> • Discussion of General OSH Standards and Principles • Performing industry related work activities in accordance with OSH Standards 	<ul style="list-style-type: none"> • Lecture • Group Discussion 	<ul style="list-style-type: none"> • Written Exam • Demonstration • Observation • Interviews / Questioning 	2 Hours
8. Exercise Efficient and Effective Sustainable Practices in the Workplace	8.1 Identify the efficiency and effectiveness of resource utilization	<ul style="list-style-type: none"> - Discussion on the process how Environmental Policies coherence is achieved • Discussion on Necessary Skills in response to changing environmental policies needs <ul style="list-style-type: none"> - Waste Skills - Energy Skills - Water Skills 	<ul style="list-style-type: none"> • Lecture • Group Discussion • Simulation • Demonstration 	<ul style="list-style-type: none"> • Written Exam • Demonstration • Observation • Interviews / Questioning 	1 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		<ul style="list-style-type: none"> - Building Skills - Transport Skills - Material Skills 			
	8.2 Determine causes of inefficiency of resource utilization	<ul style="list-style-type: none"> • Discussion of Environmental Protection and Resource Efficiency Targets • Analysis on the Relevant Work Procedure 	<ul style="list-style-type: none"> • Lecture • Group Discussion • Demonstration 	<ul style="list-style-type: none"> • Written Exam • Demonstration • Observation • Interviews / Questioning 	1 Hour
	8.3 Convey inefficient and ineffective environmental practices	<ul style="list-style-type: none"> • Identification of (re)training needs and usage of environment friendly methods and technologies • Identification of environmental corrective actions • Practicing Environment Awareness 	<ul style="list-style-type: none"> • Lecture • Group Discussion • Role Play • Demonstration 	<ul style="list-style-type: none"> • Written Exam • Demonstration • Observation • Interviews / Questioning 	1 Hour
9. Practice Entrepreneurial Skills in the Workplace	9.1 Apply entrepreneurial workplace best practices	<ul style="list-style-type: none"> • Case studies on Best entrepreneurial practices • Discussion on Quality procedures and practices • Case studies on Cost consciousness in resource utilization 	<ul style="list-style-type: none"> • Case Study • Lecture/Discussion 	<ul style="list-style-type: none"> • Case Study • Written Test • Interview 	1 Hour
	9.2 Communicate entrepreneurial workplace best practices	<ul style="list-style-type: none"> • Discussion on communicating entrepreneurial workplace best practices 	<ul style="list-style-type: none"> • Lecture/Discussion 	<ul style="list-style-type: none"> • Written Test • Interview 	1 Hour
	9.3 Implement cost-effective operations	<ul style="list-style-type: none"> • Case studies on Preservation, optimization and judicious use of workplace resources 	<ul style="list-style-type: none"> • Case Study • Lecture/Discussion 	<ul style="list-style-type: none"> • Case Study • Written Test • Interview 	2 Hours

**COMMON COMPETENCIES
72 HRS**

Unit of Competency	Learning Outcome	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 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	(Total-7 hrs) 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	1 hr
		<ul style="list-style-type: none"> Identify appropriate tools 	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written 	2 hrs
		<ul style="list-style-type: none"> materials and outfits to be used 	<ul style="list-style-type: none"> Discussion Incomplete worksheet Power point presentation Video presentation 	<ul style="list-style-type: none"> examination Interview Oral questioning Demonstration 	

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<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 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	2 hrs
	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 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	(Total -11 hrs.) 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Written examination Interview 	2 hrs

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Oral questioning 	
		<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 	<ul style="list-style-type: none"> • 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 • Incomplete worksheet • Demonstration 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	0.5 hr
		<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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	(Total – 6 hrs) 1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> Incomplete worksheet 		
		<ul style="list-style-type: none"> State labelling and storing 	<ul style="list-style-type: none"> Discussion 	<ul style="list-style-type: none"> Written 	1 hr
		<ul style="list-style-type: none"> procedures for unused materials 	<ul style="list-style-type: none"> Power point presentation Video presentation Incomplete worksheet 	<ul style="list-style-type: none"> examination Interview Oral questioning 	
		<ul style="list-style-type: none"> Explain proper wastes disposal 	<ul style="list-style-type: none"> Discussion Power point presentation Video presentation Incomplete worksheet 	<ul style="list-style-type: none"> 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 Hands-on 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	1 hr
		<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 	<ul style="list-style-type: none"> Written examination Interview Oral questioning Demonstration 	1 hr
	<ul style="list-style-type: none"> Dispose waste materials 	<ul style="list-style-type: none"> Discussion 	<ul style="list-style-type: none"> Written examination 	1 hr	

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Power point presentation • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Interview • Oral questioning • Demonstration 	
2.Use farm tools	2.1 Select 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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	(Total -6 hrs) 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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • 	(Total -19 hrs) 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 	<ul style="list-style-type: none"> • 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 • Video presentation • Incomplete worksheet 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Written examination Interview 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Video presentation • Incomplete worksheet • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Oral questioning • Demonstration 	
		<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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
	2.3Perform 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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning 	(Total -7 hrs) 1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
			<ul style="list-style-type: none"> • Incomplete worksheet 	<ul style="list-style-type: none"> • Demonstration 	
		<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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
		<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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<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 	<ul style="list-style-type: none"> • Written examination • Interview • Oral questioning • Demonstration 	1 hr
3.Perform estimation and basic calculation	3.1Perform 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 	(Total -8 hrs) 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
		<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 	(Total -8 hrs) 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

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Method	Nominal Duration
		<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 	4 hrs

**CORE COMPETENCIES
305 HRS**

Unit of Competency	Learning Outcome	Learning Activities	Methodology	Assessment Approach	Nominal Duration
1. Perform basic bamboo process	1.1 Perform pre-production activities	<ul style="list-style-type: none"> • Explain basic bamboo processes • Enumerate selection procedures for bamboo • Explain preparation of tools, materials and equipment • Discuss OSHS on pre-production activities • Perform pre-production activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	(48 hrs) 4.5 hours
	1.2 Produce semi-processed bamboo materials	<ul style="list-style-type: none"> • Enumerate semi-processed bamboo materials • Explain the operation of equipment • Explain the processed of semi 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	38 hrs

		process bamboo materials <ul style="list-style-type: none"> • Identify weaving pattern • Discussed OSHS to produce semi-process materials • Operate Equipment • Manufacture semi-processed bamboo materials • Perform weaving 			
	1.3 Complete basic bamboo processing activities	<ul style="list-style-type: none"> • Discussed inventory procedure • Enumerate scrap, waste and reusable materials • Explain processes in maintaining and cleaning tools and machines • Explain principles of 5S of good housekeeping • Maintain and store tools and materials • Apply 5S principle • Perform inventory 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	5.5 hrs
2. Carry out treatment and preservation	2.1 Perform pre-treatment activities	<ul style="list-style-type: none"> • Explain treatment and preservation • Identify treatment methods • Enumerate tools, materials and equipment • Identify defective tools and equipment 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	(44 hrs) 12 hrs

		<ul style="list-style-type: none"> • Explain the uses and functions of tools, equipment and supplies • Explain calibration procedures • Explain OSHS in handling and using tools, equipment and supplies • Explain OSHS in performing treatment and preservation • Identify environmental issues in treatment and preservation • Perform pre-treatment activities • Explain mixing ratio • Explain the procedures of solution preparation • Perform estimation and calculation • Discuss OSHS in preparing preservative solution • Perform preservative solution preparation 			
	2.2Conduct chemical treatment	<ul style="list-style-type: none"> • Explain the procedures and techniques in applying preservatives • Perform estimation and calculation 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion • 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	16 hrs

		<ul style="list-style-type: none"> • Discuss OSHS in preparing semi – processed bamboo materials and applying preservative solution • Perform preservative application 			
	2.3 Perform air drying	<ul style="list-style-type: none"> • Explain proper handling of treated semi-process bamboo materials • Explain drying and piling procedures • Discuss OSHS in drying, transferring and piling of treated bamboo • Perform drying 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	8 hrs
	2.4 Complete treatment and preservation activities	<ul style="list-style-type: none"> • Discuss storage of dried treated semi-processed bamboo slats • Explain waste segregation procedures • Discuss 5S of Good Housekeeping • Explain collecting and storing procedure of reusable materials • Explain recordkeeping • Discuss OSHS in treatment and preservation activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	8 hrs

		<ul style="list-style-type: none"> • Perform complete treatment and preservation activities 			
3. Perform kiln drying	3.1 Perform pre-drying activities	<ul style="list-style-type: none"> • Explain drying process • Identify type and parts of kiln dryer • Explain the procedure in Identifying semi process bamboo materials • Explain the procedure of selecting sample • Identify the methods of determining moisture content • Discuss the process of oven drying method • Explain the process of recording • Discussed OSHS in performing pre-drying activities • Perform pre-drying activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	<p>(58.5 hrs) 8.5 hrs</p>
	3.2 Load kiln	<ul style="list-style-type: none"> • Explain pilling procedure • Discuss the use of baffles and blankets • Discuss the procedures in positioning of moisture probes 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	10 hrs

		<ul style="list-style-type: none"> • Discussed OSHS in loading in kiln • Perform loading kiln 			
	3.3 Dry kiln charge	<ul style="list-style-type: none"> • Identify the factors affecting drying condition • Discuss the process in setting the initial drying condition of materials • Discuss drying schedules • Discuss OSHS in kiln drying operation • Operate kiln dryer 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	26.5 hrs
	3.4 Unload kiln charge	<ul style="list-style-type: none"> • Discuss the procedure in checking moisture content • Discuss the procedures in unloading, segregation of dried bamboo materials • Explain the piling and storage procedure • Discuss OSHS in unloading operation • Discuss RA 9003 • Perform unloading kiln 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	8 hrs
	3.5 Perform post drying activities	<ul style="list-style-type: none"> • Explain the principle of 5S of good housekeeping • Discuss inventory procedure 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	5.5 hrs

		<ul style="list-style-type: none"> • Explain the procedure in recording and reporting • Perform inventory • Discuss OSHS in post drying activities • Applied 5S principle 			
4. Perform milling operation	4.1 Conduct pre-milling operations	<ul style="list-style-type: none"> • Explain the preparation of bamboo materials • Identify the processes of milling operation • Identify tools and equipment • Discuss OSHS on pre-milling operations • Perform pre-milling activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	(38 hrs) 4.5 hrs
	4.2 Set-up machine for milling operation	<ul style="list-style-type: none"> • Identify the types of cutting blades and knives • Explain the process of adjusting machine and its mechanisms • Discuss the process of making sample cuts • Discuss OSHS on setting up machine • Perform setting up of machine 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	19.5 hrs
	4.3 Perform milling	<ul style="list-style-type: none"> • Discuss the process of cutting • Discuss the process of ripping 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	10 hrs

		<ul style="list-style-type: none"> • Discuss the process of planning • Discuss OSHS in milling operations • Perform milling 	<ul style="list-style-type: none"> • Discussion • Role playing 		
	4.4 Perform post milling activities	<ul style="list-style-type: none"> • Explain cleaning and inspecting procedures of tools machines and equipment • Explain restoration process of workplace • Identify the procedures in reposting and recording • Discuss OSHS on post milling operation • Discuss RA 9003 • Perform post milling activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	4 hrs
5. Laminate bamboo materials	5.1 Carry out pre-lamination activities	<ul style="list-style-type: none"> • Discuss the process of sorting bamboo materials • Identify the tools and equipment in laminating bamboo • Explain the preparation of supplies in bamboo lamination • Enumerate the types of glue • Explain consistency of glue. • Discuss OSHS in carrying out pre-lamination activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	(33 hrs) 6.5 hrs

		<ul style="list-style-type: none"> • Carry out pre-lamination activities 			
	5.2 Set-up laminating equipment and accessories	<ul style="list-style-type: none"> • Enumerate the different laminating equipment • Identify the methods in applying glue • Discuss the process of setting pressure • Discuss OSHS in setting up laminating equipment • Perform setting up of laminating equipment • Perform setting up of glue spreader. 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	9 hrs
	5.3 Apply glue	<ul style="list-style-type: none"> • Discuss process of loading glue • Explain how bamboo materials are arranged • Discuss the procedures of applying glue • Discuss OSHS in setting up laminating equipment • Perform application of glue. 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	4 hrs
	5.4 Perform pressing	<ul style="list-style-type: none"> • Discuss procedures of pressing • Explain applying corrective measures • Explain importance of setting time • Discuss OSHS in applying pressure 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	8 hrs

		<ul style="list-style-type: none"> • Perform pressing 			
	5.5 Perform post lamination activities	<ul style="list-style-type: none"> • Discuss unloading procedures • Explain significance of curing time • Explain process of storing • Discuss delaminated bamboo materials • Explain process of documentation • Discuss principles of 5S of Good housekeeping • Discuss OSHS in post lamination activities. • Perform post lamination activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	5.4 hrs
6. Produce engineered bamboo products	6.1 Conduct pre-production activities	<ul style="list-style-type: none"> • Discuss product specifications • Explain selection of materials, supplies, tools machines and equipment • Discuss OSHS in pre-production activities • Perform pre-production activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	(61.5 hrs) 4 hrs
	6.2 Produce product components	<ul style="list-style-type: none"> • Explain lamination procedures • Discuss milling operations • Enumerate machines for shaping 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	24 hrs

		<ul style="list-style-type: none"> • Discuss OSHS in producing components • Perform lamination operation • Perform milling operation • Perform shaping operation • Produce product component. 			
	6.3 Perform profiling	<ul style="list-style-type: none"> • Enumerate common profiles • Enumerate profiling machines and cutter • Enumerate characteristics of materials ready for profiling • Explain significance of making sample cuts • Discuss OSHS in making profiles • Perform profiling 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	7.5 hrs
	6.4 Make joineries	<ul style="list-style-type: none"> • Enumerate different furniture joineries • Discuss procedures in making joints • Enumerate tools and machines in making joineries • Explain the significance of lay-outing • Discuss the importance of pre-assembly 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	15 hrs

		<ul style="list-style-type: none"> • Discuss OSHS in making joineries • Make joineries 			
	6.5 Assemble product	<ul style="list-style-type: none"> • Explain assembly process • Enumerate different fixing materials • Discuss OSHS in component assembly • Perform assembly operation 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	8 hrs
	6.6 Perform post production activities	<ul style="list-style-type: none"> • Explain cleaning and inspecting procedures of tools machines and equipment • Explain restoration process of workplace • Identify the procedures in reposting and recording • Discuss OSHS on post production activities • Discuss RA 9003 • Perform post production activities 	<ul style="list-style-type: none"> • Lecture • Demonstration • Audio/Visual presentation • Discussion • Role playing 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	2 hrs
7. Perform Finishing	7.1 Carry out pre-finishing activities	<ul style="list-style-type: none"> • Identify type of finishes • Explain the preparation of materials, tools, and equipment 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	(22 hrs) 3.5 hrs

		<ul style="list-style-type: none"> • Discuss OSHS in pre – finishing activities • Carry out pre-finishing activities 			
	7.2 Perform surface preparation	<ul style="list-style-type: none"> • Enumerate surface contaminants • Discuss type surface defects • Explain sanding procedure • Discuss tools, machine and equipment • Discussed OSHS to produce semi-process materials • Perform surface preparation 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	7.5 hrs
	7.3 Apply finishing materials	<ul style="list-style-type: none"> • Discuss mixing procedure • Explain checking shades • Explain toning procedure • Discuss tools, machine and equipment • Discuss OSHS in applying finishing materials • Perform finishing procedure 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	7.5 hrs
	7.4 Perform post finishing activities	<ul style="list-style-type: none"> • Explain the principle of 5S of good housekeeping • Discuss inventory procedure 	<ul style="list-style-type: none"> • Lecture • Demonstration • Discussion 	<ul style="list-style-type: none"> • Demonstration • Written exam • Oral questioning 	3.5 hrs

		<ul style="list-style-type: none">• Discuss packaging procedures• Enumerate packaging tools and materials• Explain the procedure in recording and reporting• Discuss environmental laws in applying finishing• Perform post finishing activities			
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3.2 TRAINING DELIVERY

1. 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.
2. 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:

Institution- Based:

- Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP;
- Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video,

computer technologies or other modern technologies that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

- Distance learning may employ correspondence study, audio, video, computer technologies that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat.
- The classroom- based or in – center instruction uses of learner –centered methods as well as laboratory or field- work components.

Enterprise-Based:

- Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation.
- Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsman wherein the agreement may be written or oral and the master craftsman commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsman.
- Enterprise-based Training - where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

Community-Based

- Short term programs conducted by non- government organizations NGOs, LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP)

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
- Able to perform simple computations

3.4 TOOLS AND EQUIPMENT

BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II

Recommended list of tools, equipment and materials for the training of 25 trainees for BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II.

A. Tools, equipment and materials for Full Qualification

TOOLS	
Qty.	Description
1 pc	Bamboo Pole Cutter - 2hp, 1hp, 220V, 60hz, 80 TCT 14" diameter
1 pc	Cut-off Saw
1 pc	Twin Rip Saw - 3hp, 1ph, 220V, 60 Hz, 40 TCT 12" dia saw
1 pc	Splitting Machine 3hp, 1ph, 220V, 60 Hz
1 pc	Slicing machine 3hp, 1ph, 220V, 60 Hz
	Measuring tools
25 pcs	Diameter gauge
25 pcs	Measuring tape
25 pcs	Caliper
25 pcs	Tri-square
	Marking tools
25 pcs	Pencil
1 box	Chalk
25 pcs	Bolo
25 pcs	Shaver
25 pcs	Sizer
25 pcs	Knife
25 pcs	Scissors
25 pcs	Cutter
5 pcs	Mixing bowl (20 liters Capacity)
5 pcs	Stirring rod
1 Unit	Moisture Meter
25 pcs	Hammer
5 pcs	Adjustable wrench
5 sets	Allen wrench
5 pairs	Pliers
5 pcs	Flat screw driver
5 pcs	Philip screw driver

5 units	Grease gun
25 pcs	Oil dispenser
1 unit	Vacuum cleaner
	Clamps
10 pcs	Bar clamp (3 ft)
10 pcs	C-clamp (10" opening)
10 pcs	F Clamp
25 sets	Chisel (different sizes)
25 pcs	Coping saw
25sets	File
3 units	Pneumatic nailer
3 units	Pneumatic tacker
100 sets	Dowels
5 pcs	Hand saw
3 pcs	Pneumatic tucker
5 pcs	L-square
5 pcs	Hand planer
2 sets	Hole saw (1" – 2 1/4" diameter X 1/8" diameter interval)
3 units	Portable drill
1 unit	Portable trimmer
1 unit	Portable router
1 unit	Portable jig saw
10 pcs	Sanding block
2 units	Spray gun with accessories
	Portable Sander
2 units	Portable sander
1 unit	Electric sander
1 unit	Portable belt sander
5 units	Portable strapper
1 unit	Blower
1 pc	Flash light

EQUIPMENT	
Qty.	Description
1 unit	Spray booth
1 unit	Air Compressor w/ Spray Gun, hose and fitting 2hp, 1ph, double piston w/ air regulator
2 pcs	Finishing tables
5 units	Portable sander 4" working width
1 unit	Band Saw - 3ph, 220V, 3hp, Small size
1 unit	Jig Saw, 390W, 50-60Hz, 220V
2 units	Scroll saw 390W, 50-60Hz, 220V
1units	Portable Router, 12mm. Cap,930W,50-60Hz 220V
1 unit	Lathe machine 3ph, 3hp, 220V
1 unit	Arm Saw - 3ph, 2hp, 220V, 60 Hz w/ circular saw
1 unit	Glue Spreader w/ funnel (manual, 3in width)
1 unit	Portable Drill, 650W, 50-60Hz, 220V
1 unit	Table saw 3ph, 3hp, 220V, 60hz
1 unit	Portable Belt Sander, 940W, 50-60Hz, 220V

1 unit	Jointer Planer - 3ph, 3hp, 220V, 60hz 3 blades/cutter head 12" W
1 unit	Thickness Planer - 3ph, 5 hp, 220V, 60hz, 3 blades/cutter head 18" W
1 unit	Shaper 3ph, 3hp, 220V, 60hz+
1 unit	Multi-head spindle moulder 3ph, 5 hp, 220V, 60hz
1 unit	Electric Trimmer, 530W, 50-60Hz, 220V
1 unit	Grinder for Planer Knives 20"L
1 unit	Universal grinding machine
1 unit	Bench drill - 1/2Hp, 1ph, 220V, 60Hz 13 mm opening
1 unit	Circular Saw w/ Sliding Table 3ph, 3hp, 220V 60Hz w/ Circular saw 80 TCT 14"dia 1" dia arbor
1 unit	Double-end tenoner 3ph, 3hp, 220V
1 unit	Single spindle molder/shaper 3ph, 3hp, 220V
1 unit	Stationary router 3ph, 3hp, 220V
1 unit	Double-head bench grinder
1 unit	Glue Spreader w/ funnel (manual, 3in width)
1 unit	Laminating press (1-meter length capacity)
1 unit	Laminating table with pneumatic press
25 units	Laminating jigs
3 units	Jack lifter
4 units	Dust collector
1 unit	Wide Belt Sander 18"- 24"W 5hp, 3phase, 220V, 60Hz.
	Portable Drill
1 unit	Hand drill
1 unit	Electric drill
1 unit	Mortizer 3ph, 3hp, 220V, 60hz
1 unit	Kiln Dryer 1000 bd ft capacity
5 units	Calculator
2 units	Oven Toaster
1 unit	Weighing scale (min 1-kilogram capacity)
2 units	Treatment Vat (Metal) 30cm x 30 cm x 200 cm)

MATERIALS	
Qty.	Description
40 Kilos	PVAC Glue
5 Kilos	Common Nails 2"
5 kls	Common Nails (2 ½ ")
5 kls	Common nails (3 ")
20 yards	Plastic cover
5 pcs	Plywood (3/4" thick)
20 pcs	Lumber (2" x 2" x 8')
5 kgs	Cotton rags
1 gal	Machine oil

4 Kilos	Grease
5 box each	Brad Nails (5mm, 10mm, 15mm, 20mm, 25mm, 30mm)
1 gross each	Screws (15mm, 25mm, 50mm)
1 set	Bolt and Nut (different sizes)
3 gallons	Sanding sealer
3 gallons	Sanding sealer
20 gallons	Lacquer thinner
10 gallons	Paint thinner
20 quarts	Tinting color (different colors)
20 Liters	NGR Stain (Different colors)
5 gallons	Clear gloss lacquer
2 Gallons	Lacquer flo
5 gallons	Polyurethane Varnish with reducer
5 pcs	Paint roller
5 pcs	Paint brush
10 pcs	Rubber Roller
25 pcs	Paint Brush (2")
25 pcs	Paint brush (1")
10 pcs	Paint tray
5 pcs	Push stick
100 pcs	Bamboo poles assorted diameter (70 mm)
2000 pcs	Bamboo slats
1000 pcs	Bamboo slivers
4-side planer	Crushed bamboo
20 pcs	Sawali
3 Liters	Insecticide
3 Liters	Fungicide
10 Kilos	Borax
10 Kilos	Boric Acid
3 Liters	Caustic Soda
4 pcs	¼" x 48" x 8' plywood
20 pcs	1" x 2" x 8' lumber
10 pcs	2" x 4" x 8' lumber
50 pcs	Bamboo mats
100 pcs	Layered slats
20 pcs	Bamboo panels
50 pcs	Bamboo planks
10 pcs	Sand paper (#180)
25 pcs	Sand paper (#240)
10 pcs	Sand Paper for Belt Sander #100
25 pcs	Sand Paper #150
10 rolls	Packing tapes
20 kilos	Old news paper
2 rolls	Plastic bags (single film/laminates)
2 pcs	Pail (4L)
1 set	Drill bits (3mm – 13mm diameter)
20 pcs	Jig saw blade
30 pcs	Scroll saw blade
5 pcs	Circular saw blade
1 set	Router bits

1 set	Profile blades
	Cleaning Tools
10 pcs	Broom
10 pcs	Dust pan
10 pcs	Garbage bin
25 pcs	Sacks
	PPEs
25 pcs	Hand gloves (Cotton)
25 pcs	Eye protector
25 pcs	Dust mask
25 pcs	Earplug
25 pcs	Apron
25 pcs	Rubber shoes
25 pcs	Tight long sleeve
3 pcs	Router bits (6mmX13mm)
2 pcs	Profile blades (quarter round – 20mm radius X 13mm)
2 pcs	Profile blades (half-round – 20mm radius X13mm)
1 set	Drill bits (3mm- 13mm)
5 boxes	Staple wire (10 X10j)
	Furniture fixtures
20 pcs	Butterfly hinges
5 pcs	Piano hinges (3/4"X5meters)
5 sets	Drawer slides
15 pcs	Drawer handles
10 pcs	Magnetic catches
5 pcs	Drawer lock
150 pcs	Black Screws (1 ½ ")
150 pcs	Black Screw (2")
150 pcs	Black Screw (1")
50 pcs	Bolt and Nut
500 pcs	Dowels (6mm diameter X50 mm)
500 pcs	Dowels (8mmdiamaterX50mm)
5 gals	Glue
10 boxes	Nailer (15mm)
10boxes	Nailer (25mm)
10 boxes	Nailer (30mm)

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

B. Tools, equipment and materials per COC

COC 1 – Perform basic bamboo processing

Tools	
Qty.	Description
1 pc	Bamboo Pole Cutter - 2hp, 1hp, 220V, 60hz, 80 TCT 14" diameter
1 pc	Cut-off Saw
1 pc	Twin Rip Saw - 3hp, 1ph, 220V, 60 Hz, 40 TCT 12" dia saw
1 pc	Splitting Machine 3hp, 1ph, 220V, 60 Hz
1 pc	Slicing machine

	3hp, 1ph, 220V, 60 Hz
	Measuring tools
25 pcs	Diameter gauge
25 pcs	Measuring tape
25 pcs	Caliper
	Marking tools
25 pcs	Pencil
1 box	Chalk
25 pcs	Bolo
25 pcs	Shaver
25 pcs	Sizer
25 pcs	Knife
25 pcs	Scissors

EQUIPMENT	
Qty.	Description
1 pc each	Manual Splitter (4 blades, 5 blades, 6 blades, 8 blades, 10 blades)
1 pc each	Dowelling Gadget (6 mm Ø, 8 mm Ø, 10 mm Ø, 12 mm Ø)

MATERIALS	
Qty.	Description
100	Bamboo poles assorted diameter (70 mm)
1000	Bamboo slats
1000	Bamboo slivers
100	Crushed bamboo
	PPEs
25 pcs	Rubber Gloves
25 pcs	Eye Protector
25 pcs	Gas Mask
1 box	Match

COC 2 – Carry out treatment of semi – processed bamboo materials

TOOLS	
Qty.	Description
25 pcs	Bolo
1 Lot	Air Drying Lot
5 pcs	Mixing bowl (20 liters Capacity)
5 pcs	Stirring rod

EQUIPMENT	
Qty.	Description
5 units	Calculator
1 unit	Weighing scale (min 1-kilogram capacity)
2 units	Treatment Vat (Metal) 30cm x 30 cm x 200 cm)
1 unit	Back pack sprayer

MATERIALS	
Qty.	Description

2000 pcs	Slats
1000 pcs	Slivers
100 pcs	Crushed bamboo
10 Kilos	Rags
3 Liters	Insecticide
3 Liters	Fungicide
10 Kilos	Borax
10 Kilos	Boric Acid
3 Liters	Caustic Soda
	PPEs
25 pcs	Rubber Gloves
25 pcs	Eye Protector
25 pcs	Dust Mask

COC 3 – Perform kiln drying

TOOLS	
Qty.	Description
1 Unit	Moisture Meter

EQUIPMENT	
Qty.	Description
1 unit	Kiln Dryer 1000 bd ft capacity
5 units	calculator
1 unit	Weighing scale (min 1 kilogram capacity)
2 units	Oven Toaster

MATERIALS	
Qty.	Description
2000 pcs	Slats
1000 pcs	Slivers
100 pcs	Crushed bamboo
20 pcs	Sawali
4 pcs	1/4" x 48" x 8' plywood
20 pcs	1" x 2" x 8' lumber
10 pcs	2" x 4" x 8' lumber

COC 4 - Perform milling and produce engineered bamboo

TOOLS	
Qty.	Description
25 pcs	Caliper
25 pcs	Measuring tape
25 pcs	Tri-square
25 pcs	Hammer
5 pcs	Adjustable wrench
5 sets	Allen wrench
5 pairs	Pliers
5 pcs	Flat screw driver
5 pcs	Philip screw driver
5 units	Grease gun

1 unit	Blower
25 pcs	Oil dispenser

EQUIPMENT	
Qty.	Description
1 unit	Table saw 3ph, 3hp, 220V, 60hz
1 unit	Jointer Planer - 3ph, 3hp, 220V, 60hz 3 blades/cutter head 12" W
1 unit	Thickness Planer - 3ph, 5 hp, 220V, 60hz 3 blades/cutter head 18" W
1 unit	4-side planer
1 unit	Arm Saw - 3ph, 2hp, 220V, 60 Hz w/ circular saw 80 TCT 14" dia
4 units	Dust collector
1 unit	Single spindle molder/shaper 3ph, 3hp, 220V, 60hz
1 unit	Band Saw - 3ph, 220V, 3hp, Small size
1 unit	Wide Belt Sander 18"- 24"W 5hp, 3phase, 220V, 60Hz.
1 unit	Laminating Press (meter length capacity)
1 unit	Jig Saw, 390W, 50-60Hz, 220V
1 unit	Circular Saw w/ Sliding Table 3ph, 3hp, 220V 60Hz w/ Circular saw 80 TCT 14"dia 1" dia arbor
1 unit	Bench drill - 1/2Hp, 1ph, 220V, 60Hz 13 mm opening
1 unit	Grinder for Planer Knives 20"L
1unit	Universal tool grinder
1 unit	Double-end tenoner 3ph, 3hp, 220V, 60hz
1 unit	Stationary router 3ph, 3hp, 220V, 60hz
	Portable Drill
1 unit	Hand drill
1 unit	Electric drill
1 unit	Mortiser 3ph, 3hp, 220V, 60hz
1 unit	Portable Belt Sander, 940W, 50-60Hz, 220V
1 unit	Portable Router, 12mm. Cap,930W,50-60Hz 220V
1 unit	Glue Spreader w/ funnel (manual, 3in width)
1 unit	Air Compressor w/ Spray Gun, hose and fitting 2hp, 1ph, double piston w/ air regulator
2 units	Scroll saw 390W, 50-60Hz, 220V
1 unit	Lathe machine 3ph, 3hp, 220V
1 unit	Portable Drill, 650W, 50-60Hz, 220V
1 unit	Shaper 3ph, 3hp, 220V, 60hz+
1 unit	Tenoner 3ph, 3hp, 220V
1 unit	Multi-head spindle moulder 3ph, 5 hp, 220V, 60hz
1 unit	Electric Trimmer,530W, 50-60Hz,220V

1 unit	Double-head bench grinder
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MATERIALS	
Qty.	Description
2000	Slats
1000	Slivers
100	Crushed bamboo
50	Bamboo mats
100	Layered slats
20	Bamboo panels
50	Bamboo planks
1 gal	Machine oil
1 gal	Grease
5 kg	Cotton Rags
10 pcs	Sand paper (#180)
10 pcs	Sand paper (#240)
1 set	Blades
1 set	Drill bits Drill bits (3mm- 13mm) (3mm – 13mm diameter)
	PPE's
25 pcs	Mask
25 pcs	Goggles
25 pcs	Earplug
25 pcs	Gloves
25 pcs	Apron
25 pcs	Rubber shoes
25 pcs	Tight long sleeve
	Cleaning tools
10 pcs	Broom
10 pcs	Dust pan
10 pcs	Garbage bin
25 pcs	Sacks
25 pcs	Clamps 100 mm to 500 mm opening
5 pcs	Push stick
1 Liter	Machine oil
3 pcs	Router bits (6mmX13mm)
2 pcs	Profile blades (quarter round – 20mm radius X 13mm)
2 pcs	Profile blades (half-round – 20mm radius X13mm)

COC 5 – Laminate bamboo materials

TOOLS	
Qty.	Description
	Measuring Tools
30 pcs	Caliper

30 pcs	Measuring tape
30 pcs	Tri - square
30 pcs	Hammer
1 pc	Adjustable wrench
5 pairs	Pliers
5 pcs	Philip Screw driver
5 pcs	Flat screw driver
10 pcs	Rubber Roller
30 pcs	Paint Brush (2")
30 pcs	Paint brush (1")
10 pcs	Paint tray
10 pcs	Clamps
	Bar clamp
	C Clamp
	F Clamp
40 Kilos	PVAC Glue
5 Kilos	Common Nails 2"
20 yards	Plastic cover
5 pcs	Plywood (3/4" thick)
20 pcs	Lumber (2" x 2" x 8')
5 Kilos	Cotton rags
1 Liter	Machine oil
4 Kilos	Grease
5 pcs	Glue spreader

EQUIPMENT	
Qty.	Description
1 unit	Laminating Equipment (1 meter length capacity)
1 unit	Glue Spreader w/ funnel (manual, 3in width)
1 unit	Air Compressor w/ Spray Gun, hose and fitting 2hp, 1ph, double piston w/ air regulator
1 unit	Laminating table with pneumatic press
25 units	Laminating jigs
3 units	Jack lifter

MATERIALS	
Qty.	Description
1000 pcs	Slats
1000 pcs	Slivers
100 pcs	Crushed bamboo
50 pcs	Bamboo mats
	Cleaning Tools
10 pcs	Broom
10 pcs	Dust pan
10 pcs	Garbage bin
10 pcs	Sacks

PPE's	
25 pcs	Hand gloves (Cotton)
25 pcs	Eye protector
25 pcs	Dust mask

COC 6 - Perform finishing

TOOLS	
Qty.	Description
50 pieces	Paint brush (Different sizes)
5 pieces	Stirring rod
10 pieces	Sanding block
2 units	Spray gun with accessories
3 gallons	Sanding sealer
20 gallons	Lacquer thinner
10 gallons	Paint thinner
20 quarts	Tinting color (different colors)
20 Liters	NGR Stain (Different colors)
5 gallons	Clear gloss lacquer
2 Gallons	Lacquer flo
5 gallons	Polyurethane Varnish with reducer
5 pcs	Paint roller
	Portable Sander
1 unit	Pneumatic sander
1 unit	Electric sander
1 unit	Portable belt sander
30 pcs	Cutter
30 pcs	Scissor
5 units	Portable strapper

EQUIPMENT	
Qty.	Description
1 unit	Spray booth
1 unit	Air Compressor w/ Spray Gun, hose and fitting 2hp, 1ph, double piston w/ air regulator
2 pcs	Finishing tables
5 units	Portable sander 4" working width

MATERIALS	
Qty.	Description
50 pcs	Bamboo planks
2 pcs	Pail (4L)
25 pcs	Sand Paper #150
25 pcs	Sand Paper #240
10 pcs	Sand Paper for Belt Sander #100
2 rolls	Plastic bags (single film/laminates)
10 rolls	Packing tapes
20 kilos	Old news paper
20 kilos	Cotton Rags

	PPEs
25 pcs	Mask
25 pcs	Googles
25 pcs	Apron
25 pcs	Gloves

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

BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II

Based on a class size of 25 students/trainees

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS	GRAND TOTAL AREA IN SQ. METERS
A. Building (permanent)				215
<ul style="list-style-type: none"> Student/Trainee Working Space 	2.00 x 1.00 per student/trainee	2.00 per student	50.00	
<ul style="list-style-type: none"> Learning Resource Center 	3.00 x 5.00	15.00	15.00	
<ul style="list-style-type: none"> Activity Room (including facilities, wash room, and store room) 	2.00x 3.00	6.00 per trainee	150.00	
B. Processing Area				300
TOTAL				515

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

3.6 TRAINER'S QUALIFICATIONS FOR AGRICULTURE, FORESTRY AND FISHERY SECTOR - BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II

- Must be a holder of NTTC Level I in BAMBOO PROCESSING (ENGINEERED BAMBOO) NC II
- Must have at least 2 years job/industry experience for the last five (5) years

3.7 INSTITUTIONAL ASSESSMENT

Institutional Assessment is undertaken by trainees in a structured learning program to determine their achievement of units of competencies. It is administered by the trainer/assessor at end of each learning module.

The result of the institutional assessment may be considered as evidence for the assessment for national certification.

As a matter of policy, graduates of programs registered with TESDA under these training regulations are required to undergo mandatory national competency assessment upon completion of the program.

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 A National Certificate (NC) is issued when a candidate has demonstrated competence on all units of competency in a qualification with a promulgated Training Regulations.

4.1.2 A Certificate of Competency (CoC) is issued by the Authority to individuals who were assessed as competent in a single unit or cluster of related units of competency.

COC 1	Perform basic bamboo processing
COC 2	Carry out treatment of semi-processed bamboo materials
COC 3	Perform kiln drying
COC 4	Perform milling and produce engineered bamboo
	<ul style="list-style-type: none">• Perform milling operation• Produce engineered bamboo
COC 5	Laminate bamboo materials
COC 6	Perform Finishing

4.1.3 Upon accumulation of the COCs acquired, an individual shall be issued the corresponding National Certificate for the Qualification.

4.1.4 Individuals wanting to be certified will have to be assessed in accordance with the requirements identified in the relevant unit/s of competency.

4.1.5 The industry shall determine assessment and certification requirements for each qualification with promulgated Training Regulations. It includes the following:

- Entry requirements for candidates
- Evidence gathering methods
- Qualification requirements of competency assessors
- Specific assessment and certification arrangements as identified by industry

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

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.

**COMPETENCY MAP – AGRICULTURE, FORESTRY AND FISHERY SECTOR BAMBOO PROCESSING
(ENGINEERED BAMBOO) NC II**

BASIC COMPETENCY

Participate in workplace communication	Work in team environment	Solve/address general workplace problems	Develop career and life decisions	Contribute to workplace innovation	Present relevant information	Practice occupational safety and health policies and procedures	Exercise efficient and effective sustainable practices in the workplace	Practice entrepreneurial skills in the workplace
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COMMON COMPETENCY

Apply safety measures in farm operations	Use farm tools and equipment	Perform estimation and calculation	Apply basic first aid	Process farm wastes
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CORE COMPETENCY

Supervise agronomic crop maintenance	Produce fruit bearing crops	Undertake agronomical crop maintenance activities	Implement vertebrate pest control program	Implement a plant establishment program	Maintain the workplace	Perform post harvest operations of major tropical fruits	Undertake agronomic crop harvesting activities	Monitor and operate water treatment processes	Transport, handle and store chemicals
Support agronomic crop work	Perform post harvest operation of major lowland and semi-temperate vegetable crops	Save, prepare and store agricultural seed	Collect samples for a rural production of horticulture monitoring program	Supervise agricultural crop establishment	Support horticultural crop work	Prepare land for agricultural crop production	Undertake field budding and grafting	Save, prepare and store agricultural seed	Implement and monitor quality assurance procedures
Support irrigation work	Prepare and apply chemicals	Coordinate a horticultural crop maintenance program	Undertake agronomic crop maintenance activities	Support and review business structures and relationships	Support nursery work	implement a plant nutrition program	Establish horticultural crops	Coordinate machinery and equipment maintenance and repair for agricultural crops	Promote plant health
Conduct pre-horticultural farm operations	Control weeds	Undertake a propagation program	Operate pertigation equipment	Implement and monitor a property improvement plan	Produce vegetables	Implement a post-harvest program	Coordinate horticultural crop harvesting	Operate within a budget framework	Supervise maintenance of machinery and equipment
Plan & implement a chemical use program	Establish agronomic crops	Supervise horticultural crop harvesting	Comply with industry quality assurance requirements	Keep records for a farm business	Apply basic first aid	Implement vertebrate pest control program	Control weeds, pests and /or diseases in crops	Supervise agronomic crop harvesting	Analyze and interpret production data
Conduct Variety and Seed Selection	Perform Land preparation	Carry-out Crop Establishment	Manage crop	Conduct of Harvest and Post-Harvest Operations	Establish sugarcane nursery	Plant sugarcane	Care and maintain sugarcane and ratoon crops	Operate Nursery for oil Palm Plants	Grow the Oil Palm Plants Seedlings
Harvesting Fresh Fruit Bunch (FFB)	Perform basic bamboo processing	Perform kiln drying	Perform milling operation	Laminate bamboo materials	Produce engineered bamboo	Perform finishing	Package finished product		

GLOSSARY OF TERMS

BASIC BAMBOO PROCESS	The process converting bamboo poles into semi-process bamboo materials like slats, slivers, dowels, stick, crushed bamboo.
BAMBOO PANEL	a wide and elongated rectangular laminated bamboo use for paneling and table tops.
BAMBOO PLANKS	Laminated bamboo slats ideal for flooring materials and furniture components. Its standard size is usually four inches in width
COLD SETTING CULM	A synthetic resin that can harden at room temperature the stem of the bamboo consisting of the nodes and internode.
CURING TIME	the time needed for an adhesive to fully cure.
DRYING END POINT	The point wherein the desired moisture level is achieved
FINISH MILLING	The shaping of the laminated components to conform to the desired measurements.
FIXING MATERIALS	Materials used in attaching furniture components like glues, nails, bolts, screws etc.
LAYERED SLATS	bamboo slats laminated tangentially
MILLING PROCESS	the processing of bamboo slats or components into the desired cross section using equipment such as jointers, planers, and single or multiple spindles. Usually classified as rough milling or finish milling
MIXING RATIO	The ratio of solvent and the solute like in preparing preservative solution or in preparing finishing materials.
MOISTURE CONTENT	the amount of water in bamboo express in percentage of its dry weight.
OSHS	Occupational Safety and Health Standards
PRESERVATIVES	chemical used in treating bamboo against biodegrading organisms.
PROFILING	the process of artistic outline or contour in the edges of base boards ,frames and table tops.
ROUGH MILLING	The two surfaces of the slats are sorted by thickness or color and are planed accordingly with the usual thickness of 5-8 mm using a planer.

SETTING TIME	the amount of time the adhesive needs to form a good bond
SLIVERS	a thin strip of bamboo cut lengthwise with the grain. Usually used in weaving mats.
SPOKES	Thin rounded bamboo stick usually used in weaving
SURFACE CONTAMINANTS	these are foreign materials present on the surface that is going to be finished.
THERMOS SETTING	A synthetic resin that hardens when heats is induced.
TONING	A process in finishing to make the shade of the finish uniform.
WANING	the process process of removing the cuticula of a bamboo slat prior to treatment



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